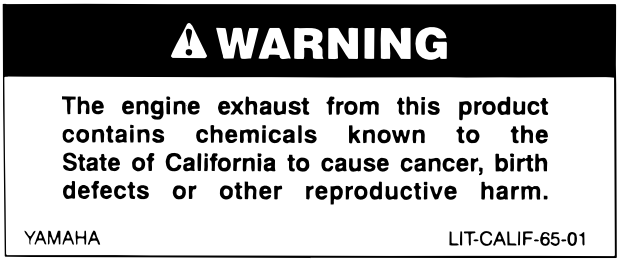
YAMAHA

F9.9B
T9.9B

OWNER'S MANUAL

U.S.A.Edition
LIT-18626-05-04


WARNING
The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.
YAMAHA
LIT-CALIF-65-01

EMU01449

TO THE OWNER

Thank you for choosing a Yamaha outboard motor. This Owner's manual contains information needed for proper operation, maintenance and care. A thorough understanding of these simple instructions will help you obtain maximum enjoyment from your new Yamaha. If you have any question about the operation or maintenance of your outboard motor, please consult a Yamaha dealer.

In this Owner's Manual particularly important information is distinguished in the following ways.

⚠ The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠WARNING

Failure to follow WARNING instructions could result in severe injury or death to the machine operator, a bystander, or a person inspecting or repairing the outboard motor.

CAUTION:

A CAUTION indicates special precautions that must be taken to avoid damage to the outboard motor.

NOTE:

A NOTE provides key information to make procedures easier or clearer.

* Yamaha continually seeks advancements in product design and quality. Therefore, while this manual contains the most current product information available at the time of printing, there may be minor discrepancies between your machine and this manual. If there is any question concerning this manual, please consult your Yamaha dealer.

NOTE:

The F9.9MH, T9.9ER, and their standard accessories are used as a base for the explanations and illustrations in this manual. Therefore, some items may not apply to every model.

EMU01446

F9.9B, T9.9B
OWNER'S MANUAL
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E

CONTENTS

GENERAL INFORMATION 1

BASIC COMPONENTS 2

OPERATION 3

MAINTENANCE 4

TROUBLE RECOVERY 5

INDEX 6

READ THIS OWNER'S MANUAL CAREFULLY BEFORE OPERATING YOUR OUTBOARD MOTOR.

E

EMU00004

1

Chapter 1

GENERAL INFORMATION

IDENTIFICATION NUMBERS RECORD 1-1
Outboard motor serial number.....1-1
Key number.....1-1
EMISSION CONTROL INFORMATION ..1-2
Star labels.....1-3
SAFETY INFORMATION 1-4

IMPORTANT LABELS 1-6

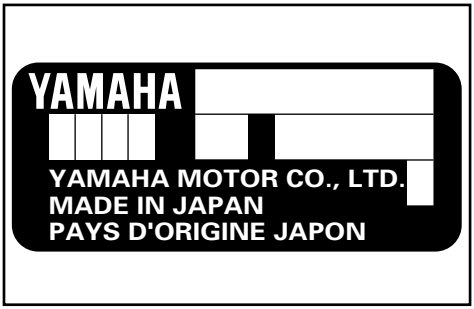
BASIC BOATING RULES 1-7

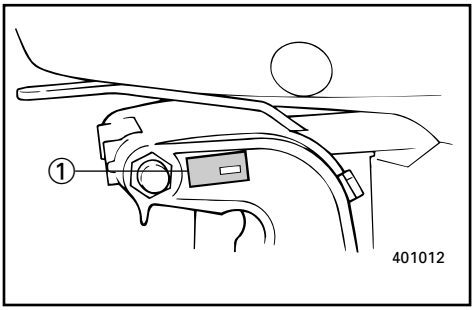
FUELING INSTRUCTIONS.....1-11
Gasoline.....1-12
ENGINE OIL.....1-13

BATTERY REQUIREMENT.....1-14

PROPELLER SELECTION 1-15

START-IN-GEAR PROTECTION.....1-16





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IDENTIFICATION NUMBERS RECORD

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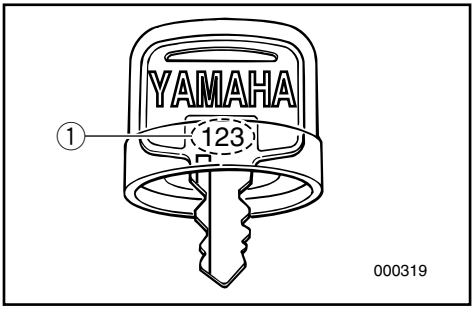
OUTBOARD MOTOR SERIAL NUMBER

The outboard motor serial number is stamped on the label attached to the port side of the clamp-bracket.

Record your outboard motor serial number in the spaces provided to assist you in ordering spare parts from your Yamaha dealer or for reference in case your outboard motor is stolen.

① Outboard motor serial number



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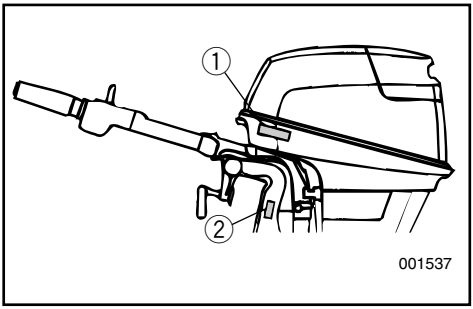
KEY NUMBER

If a main key switch is equipped with the motor, the key identification number is stamped on your key as shown in the illustration. Record this number in the space provided for reference in case you need a new key.

① Key number



①

EMISSION CONTROL INFORMATION EM

ENGINE FAMILY : [ ]

THIS ENGINE CONFORMS TO [ ] U.S. EPA REGULATIONS FOR MARINE SI ENGINES.
THIS ENGINE CONFORMS TO [ ] CALIFORNIA EMISSION REGULATIONS FOR SI MARINE ENGINES.
REFER TO THE OWNERS MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.

FELs : [ ] g/kw-hr	IDLE SPEED : [ ] rpm IN NEUTRAL
SPARK PLUG : [ ] [ ]	SPARK PLUG GAP (mm) : [ ]
DISPLACEMENT : [ ] cm 3	FUEL : GASOLINE
ADVERTISED POWER : [ ] kw	VALVE LASH (mm) : IN [ ] EX [ ]

YAMAHA MOTOR CO.,LTD. [ ]

②

YAMAHA

Manufactured: □□□□□□

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EMISSION CONTROL INFORMATION

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NORTH AMERICAN MODELS

This engine conforms to U.S. Environmental Protection Agency (EPA) regulations for marine SI engines. See the label affixed to your engine for details.

Approval label of Emission control certificate

This label is attached to the bottom cowling.

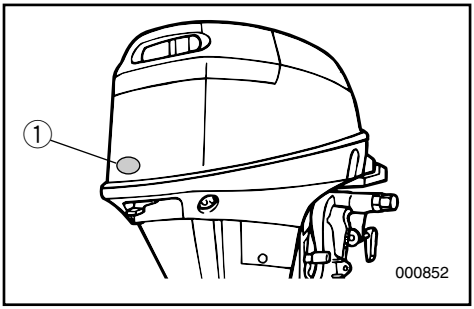
① **Emission control information label**

New Technology ; (4-stroke/HPDI) EM

Manufactured date label

This label is attached to the clamp bracket.

② **Manufactured date label**



EMU01389

STAR LABELS

Your outboard motor is labeled with a California Air Resources Board (CARB) star label. See below for a description of your particular label.

① Star label

One Star - Low Emission

The one-star label identifies engines that meet the Air Resources Board's 2001 exhaust emission standards. Engines meeting these standards have 75% lower emissions than conventional carbureted two-stroke engines. These engines are equivalent to the U.S. EPA's 2006 standards for marine engines.

Two Stars - Very Low Emission

The two-star label identifies engines that meet the Air Resources Board's 2004 exhaust emission standards. Engines meeting these standards have 20% lower emissions than One Star-Low-Emission engines.

Three Stars - Ultra Low Emission

The three-star label identifies engines that meet the Air Resources Board's 2008 exhaust emission standards. Engines meeting these standards have 65% lower emissions than One Star-Low-Emission engines.

EMU00917

⚠ SAFETY INFORMATION

- Before mounting or operating the outboard motor, read this entire manual. Reading it should give you an understanding of the motor and its operation.
- Before operating the boat, read any owner's or operator's manuals supplied with it and all labels. Be sure you understand each item before operating.
- Do not overpower the boat with this outboard motor. Overpowering the boat could result in loss of control. The rated power of the outboard should be equal to or less than the rated horsepower capacity of the boat. If the rated horsepower capacity of the boat is unknown, consult the dealer or boat manufacturer.
- Do not modify the outboard. Modifications could make the motor unfit or unsafe to use.
- Never operate after drinking alcohol or taking drugs. About 50% of all boating fatalities involve intoxication.
- Have an approved personal flotation device (PFD) on board for every occupant. It is a good idea to wear a PFD whenever boating. At a minimum, children and non-swimmers should always wear PFDs, and everyone should wear PFDs when there are potentially hazardous boating conditions.
- Gasoline is highly flammable, and its vapors are flammable and explosive. Handle and store gasoline carefully. Make sure there are no gas fumes or leaking fuel before starting the engine.
- This product emits exhaust gases which contain carbon monoxide, a colorless, odorless gas which may cause brain damage or death when inhaled. Symptoms include nausea, dizziness, and drowsiness. Keep cockpit and cabin areas well ventilated. Avoid blocking exhaust outlets.
- Check throttle, shift, and steering for proper operation before starting the engine.
- Attach the engine stop switch lanyard to a secure place on your clothing, or your arm or leg while operating. If you accidentally leave the helm, the lanyard will pull from the switch, stopping the engine.
- Know the marine laws and regulations where you will be boating - and obey them. Refer to the "RULES OF THE ROAD" section for basic boating rules.
- Stay informed about the weather. Check weather forecasts before boating. Avoid boating in hazardous weather.
- Tell someone where you are going: leave a Float Plan with a responsible person. Be sure to cancel the Float Plan when you return.
- Use common sense and good judgment when boating. Know your abilities, and be sure you understand how your boat handles under the different boating conditions you may encounter. Operate within your limits, and the limits of your boat. Always operate at safe speeds, and keep a careful watch for obstacles and other traffic.
- Always watch carefully for swimmers during the engine operation.
- Stay away from swimming areas.
- When a swimmer is in the water near you shift into neutral and shut off the engine.

- Be informed about boating safety. Additional publications and information can be obtained from many organizations, including the following:

United States Coast Guard

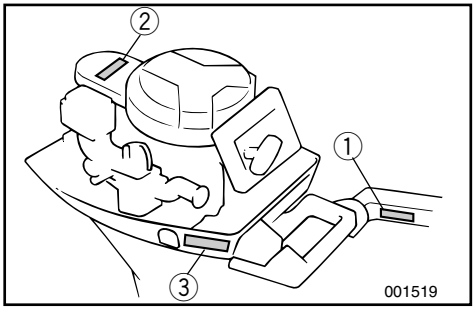
Consumer Affairs Staff (G-BC)
Office of Boating, Public, and Consumer Affairs
U.S. Coast Guard Headquarters
Washington, D.C. 20593-0001
Boating Safety Hotline: 1-800-368-5647

National Marine Manufacturers Association (NMMA)

401 N. Michigan Ave.
Chicago, Il 60611

Marine Retailers Association of America

155 N. Michigan Ave.
Chicago, Il 60601



EMU00014

IMPORTANT LABELS

WARNING LABELS

①

WARNING

This engine is equipped with a neutral starting device. The engine will not start unless the shift control is in neutral position.

YAMAHA 6E0-83627-41

②

WARNING

- Be sure shift control is in neutral before starting engine. (except 2HP)
- Do not touch or remove electrical parts when starting or during operation.
- Keep hands,hair,and clothes away from flywheel and other rotating parts while engine is running.

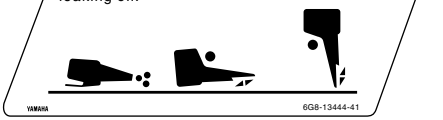
YAMAHA 6A1-83625-41

CAUTION LABELS

③

CAUTION

Transport and store the engine only as shown. Otherwise, engine damage could result from leaking oil.



YAMAHA 6G8-13444-41

EMU00015

BASIC BOATING RULES (Rules of the road)

Just as there are rules which apply when you are driving on streets and high ways, there are waterway rules which apply when you are driving your boat. These rules are used internationally, and are also enforced by the United States Coast Guard and local agencies. You should be aware of these rules, and follow them whenever you encounter another vessel on the water.

Several sets of rules prevail according to geographic location, but are all basically the same as the International Rules of the Road. The rules presented here in your Owner's Manual are condensed, and have been provided for your convenience only. Consult your local U.S. Coast Guard Auxiliary or Department of Motor Vehicles for a complete set of rules governing the waters in which you will be using your boat.

STEERING AND SAILING RULES AND SOUND SIGNALS

Whenever two vessels on the water meet one another, one vessel has the right-of-way; it is called the "stand-on" vessel. The vessel which does not have the right-of-way is called the "give-way" or "burdened" vessel. These rules determine which vessel has the right-of-way, and what each vessel should do.

Stand-on vessel

The vessel with the right-of-way has the duty to continue its course and speed, except to avoid an immediate collision. When you maintain your direction and speed, the other vessel will be able to determine how best to avoid you.

Give-way vessel

The vessel which does not have the right-of-way has the duty to take positive and timely action to stay out of the way of the Stand-On vessel. Normally, you should not cross in front of the vessel with the right-of-way. You should slow down or change directions briefly and pass behind the other vessel. You should always move in such a way that the operator of the other vessel can see what you are doing.

"The general prudential rule"

This rule is called Rule 2 in the International Rules and says,

'In obeying and construing these rules due regard shall be had to all dangers of navigation and collision, and to any special circumstances, which may render a departure from the above rules necessary in order to avoid immediate danger.'

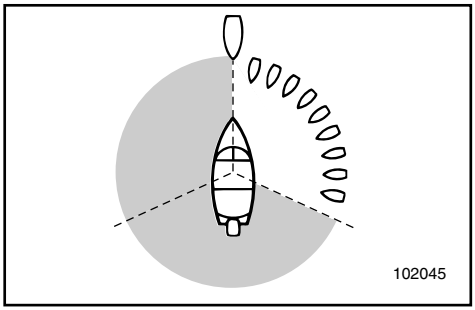
In other words, follow the standard rules except when a collision will occur unless both vessels try to avoid each other. If that is the case, both vessels become "Give-Way" vessels.

RULES WHEN ENCOUNTERING VESSELS

There are three main situations which you may encounter with other vessels which could lead to a collision unless the Steering Rules are followed:

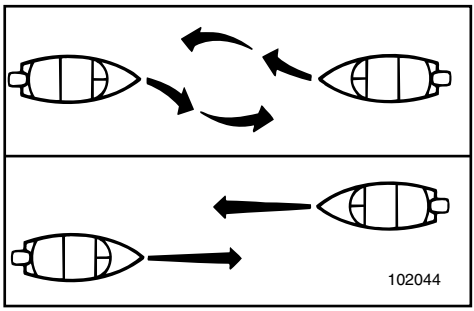
Meeting (you are approaching another vessel head-on)
Crossing (you are traveling across the other vessel's path)
Overtaking (you are passing or being passed by another vessel)

In the following illustration, your boat is in the center. You should give the right-of-way to any vessels shown in white area (you are the Give-Way vessel). Any vessels in the shaded area must yield to you (they are the Give-Way vessels). Both you and the meeting vessel must alter course to avoid each other.



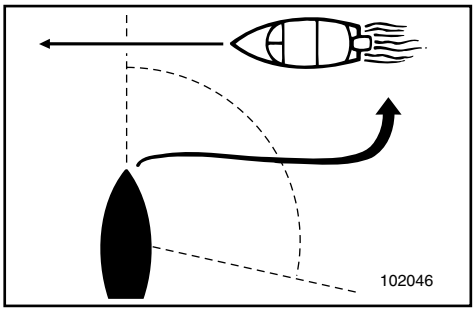
Meeting

If you are meeting another power vessel head on, and are close enough to run the risk of collision, neither of you has the right-of-way! Both of you should alter course to avoid an accident. You should keep the other vessel on your port (left) side. This rule doesn't apply if both of you will clear one another if you continue on your set course and speed.



Crossing

When two power driven vessels are crossing each other's path close enough to run the risk of collision, the vessel which has the other on the starboard (right) side must keep out of the way of the other. If the other vessel is on your right, you must keep out of its way; you are the Give-Way vessel. If the other vessel is on your port (left) side, remember that you should maintain course and direction, provided the other vessel gives you the right-of-way as it should.



Overtaking

If you are passing another vessel, you are the "Give-Way" vessel. This means that the other vessel is expected to maintain its course and speed. You must stay out of its

way until you are clear of it. Likewise, if another vessel is passing you, you should maintain your speed and direction so that the other vessel can steer itself around you.

OTHER SPECIAL SITUATIONS

There are three other rules you should be aware of when driving your boat around other vessels.

Narrow channels and bends

When navigating in narrow channels, you should keep to the right when it is safe and practical to do so. If the operator of a power-driven vessel is preparing to go around a bend that may obstruct the view of other water vessels, the operator should sound a prolonged blast on the whistle (4 to 6 seconds). If another vessel is around the bend, it too should sound the whistle. Even if no reply is heard, however, the vessel should still proceed around the bend with caution. If you navigate such waters with your boat, you will need to carry a portable air horn, available from local marine supply stores.

Fishing vessel right-of-way

All vessels which are fishing with nets, lines or trawls are considered to be “fishing vessels” under the International Rules. Vessels with trolling lines are not considered fishing vessels. Fishing vessels have the right-of-way regardless of position. Fishing vessels cannot, however, impede the passage of other vessels in narrow channels.

Sailing vessel right-of-way

Sailing vessels should normally be given the right-of-way. The exceptions to this are:

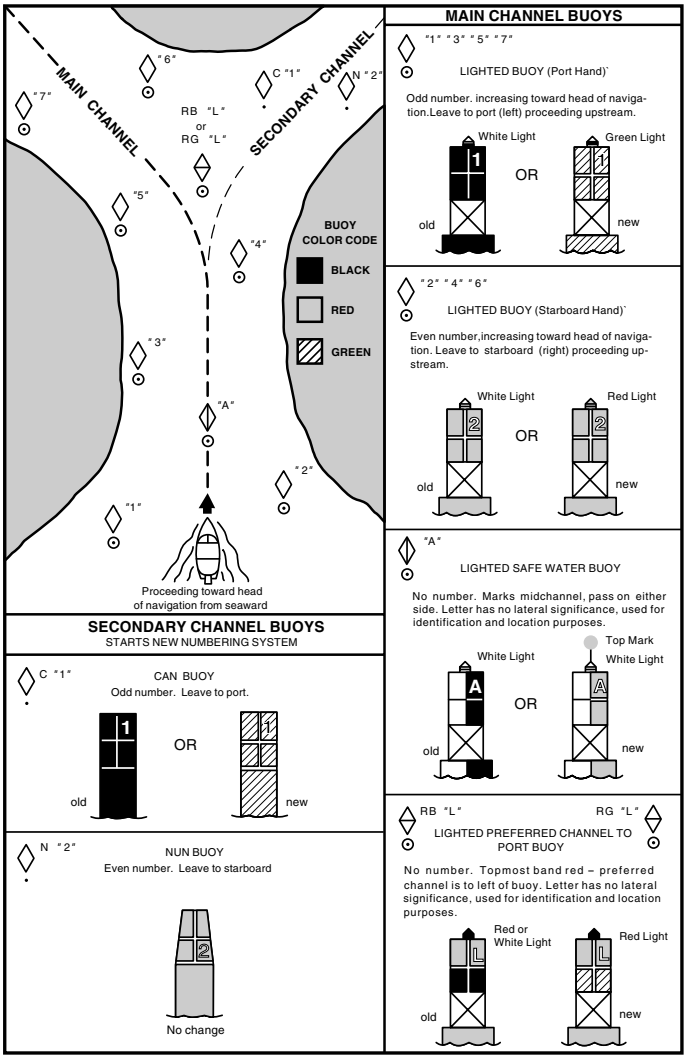
1. When the sailing vessel is overtaking the power-driven vessel, the power-driven vessel has the right-of-way.
2. Sailing vessels should keep clear of any fishing vessel.
3. In a narrow channel, a sailing vessel should not hamper the safe passage of a power-driven vessel which can navigate only in such a channel.

Reading buoys and other markers

The waters of the United states are marked for safe navigation by the lateral system of buoyage. Simply put, buoys and markers have an arrangement of shapes, colors, numbers and lights to show which side of the buoy a boater should pass on when navigating in a particular direction. The markings on these buoys are oriented from the perspective of being entered from seaward (the boater is going towards the port). This means that red buoys are passed on the starboard (right) side when proceeding from open water into port, and black buoys are to port (left) side. When navigating out of port, your position with respect to the buoys should be reversed; red buoys should be to port and black buoys to starboard.

Many bodies of water used by boaters are entirely within the boundaries of a particular state. The Uniform State Waterway Marking System has been devised for these waters. This system uses buoys and signs with distinctive shapes and colors to show regulatory or advisory information. These markers are white with black letters and orange boarders. They signify speed zones, restricted areas, danger areas, and general information.

Remember, markings may vary by geographic location. Always consult local boating authorities before driving your boat in unfamiliar waters.



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EMU00016

FUELING INSTRUCTIONS

⚠WARNING

GASOLINE AND ITS VAPORS ARE HIGHLY FLAMMABLE AND EXPLOSIVE!

- **Do not smoke when refueling, and keep away from sparks, flames, or other sources of ignition.**
- **Stop engine before refueling.**
- **Refuel in a well-ventilated area. Refuel portable fuel tanks off the boat.**
- **Take care not to spill gasoline. If gasoline spills, wipe it up immediately with dry rags.**
- **Do not overfill the fuel tank.**
- **Tighten the filler cap securely after refueling.**
- **If you should swallow some gasoline inhale a lot of gasoline vapor, or get gasoline in your eyes, get immediate medical attention.**
- **If any gasoline spills onto your skin, immediately wash with soap and water. Change clothing if gasoline spills on it.**
- **Touch the fuel nozzle to the filler opening or funnel to help prevent electrostatic sparks.**

CAUTION:

Use only new clean gasoline which has been stored in clean containers and is not contaminated with water or foreign matter.

EMU01804

GASOLINE

Recommended gasoline:
Regular unleaded gasoline with a minimum octane rating of 86 (Pump Octane Number) = (R+M)/2

If knocking or pinging occurs, use a different brand of gasoline or premium unleaded fuel.

EMU00027

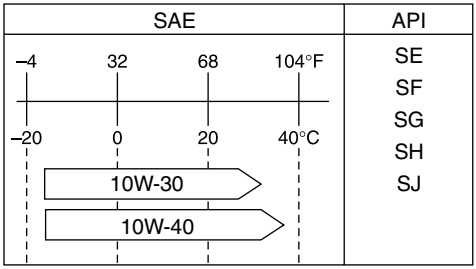
Gasohol

There are two types of gasohol: gasohol containing ethanol and that containing methanol. Gasohol containing ethanol can be used if ethanol content does not exceed 10% and the fuel meets minimum octane ratings. Gasohol containing methanol is not recommended by Yamaha because it can cause fuel system damage or engine performance problems.

EMU01769

ENGINE OIL

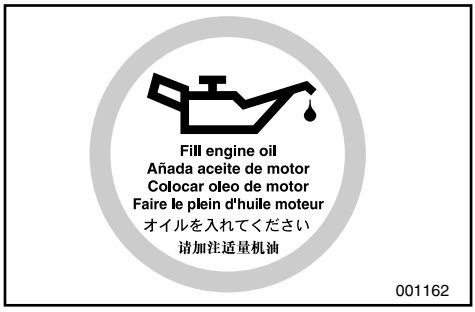
Recommended engine oil:
4-stroke motor oil with a combination of corresponding SAE and API as shown in the chart.



Engine oil quantity:
See Chapter 4, “Specifications.”

CAUTION:

All 4-stroke engines are shipped from the factory without engine oil.



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BATTERY REQUIREMENT

CAUTION:

Do not use a battery that does not meet the specified capacity. If a battery which does not meet specifications is used, the electric system could perform poorly or be overloaded, causing electric system damage.

For electric start models, choose a battery which meets the following specifications.

EMU01859

Minimum cold cranking amps (CCA/SAE): 245 amps at -18°C (-0.4°F)
Minimum marine cranking amps (MCA/ABYC): 323 amps at 0°C (32°F)
Minimum reserve capacity (RC/SAE): 52 minutes

EMU01783

CAUTION:

A battery cannot be connected to models that do not have a rectifier or Rectifier Regulator.
Models without a rectifier or Rectifier Regulator: F9.9MH

- **If you wish to use a battery with the above models, install an optional Rectifier Regulator.**

EMU01395

PROPELLER SELECTION

The performance of your outboard motor will be critically affected by your choice of propeller, as an incorrect choice could adversely affect performance and could also seriously damage the motor. Engine speed depends on the propeller size and boat load. If engine speed is too high or too low for good engine performance, this will have an adverse effect on the engine.

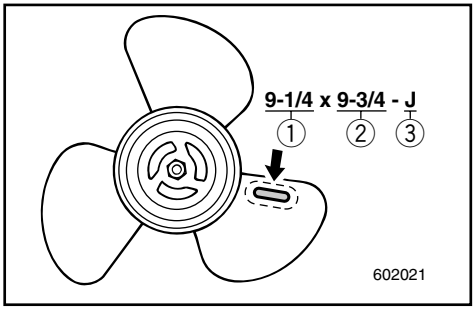
Yamaha outboard motors are fitted with propellers chosen to perform well over a range of applications, but there may be uses where a propeller with a different pitch would be more appropriate. For a greater operating load, a smaller-pitch propeller is more suitable as it enables the correct engine speed to be maintained. Conversely, a larger-pitch propeller is more suitable for a smaller operating load.

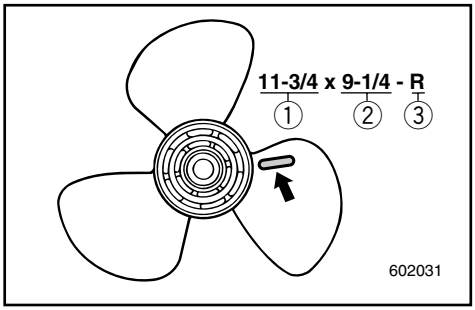
Yamaha dealers stock a range of propellers, and can advise you and install a propeller on your outboard that is best suited to your application.

NOTE:

At full throttle and under a maximum boat load, the engine's rpm should be within the upper half of the full throttle operating range, as listed in "SPECIFICATIONS" on page 4-1. Select a propeller which fulfills this requirement.

If operating under conditions which allow the engine's rpm to rise above the maximum recommended range (such as light boat loads), reduce the throttle setting to maintain the rpm in the proper operating range.





① Propeller diameter (in inches)
② Propeller pitch (in inches)
③ Type of propeller (propeller mark)

Refer to the section “CHECKING PROPELLER” for instructions on propeller removal and installation.

EMU01209

START-IN-GEAR PROTECTION

Yamaha outboard motors or Yamaha approved remote control units are equipped with start-in-gear protection device(s). This feature permits the engine to be started only when it is Neutral. Always select Neutral before starting the engine.

-MEMO-

E

EMU00037

Chapter 2
BASIC COMPONENTS

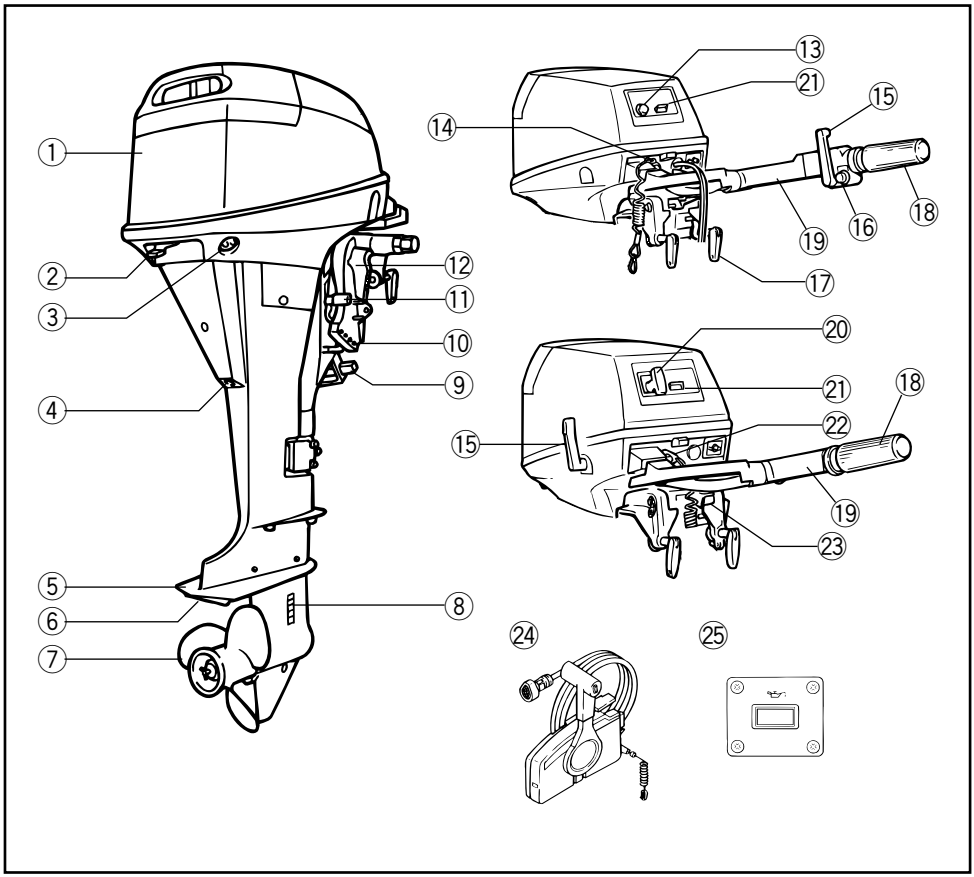
2

MAIN COMPONENTS.....2-1

OPERATIONS OF CONTROLS AND OTHER FUNCTIONS 2-2
Fuel tank.....2-2
Gear shift lever.....2-3
Engine stop lanyard switch 2-3
Recoil starter handle.....2-4
Starter button 2-4
Tiller handle 2-4
Remote control 2-6
Steering friction adjusting screw.....2-9
Trim angle adjusting rod.....2-10
Shallow water lever.....2-11
Tilt lock mechanism 2-12
Tilt support lever 2-12
Top cowling lock lever 2-12

EMU01206

MAIN COMPONENTS



① Top cowling
② Top cowling lock lever
③ Cooling water pilot hole
④ Oil drain bolt
⑤ Anti-cavitation plate
⑥ Anode
⑦ Propeller
⑧ Cooling water inlet
*⑨ Shallow water lever
⑩ Trim angle adjusting rod
⑪ Tilt support lever
⑫ Clamp bracket
*⑬ Starter button
⑭ Engine stop lanyard switch
⑮ Gear shift lever
⑯ Engine stop button
⑰ Clamp screw
⑱ Throttle control grip
⑲ Tiller handle
*⑳ Recoil starter handle
㉑ Oil pressure indicator
㉒ Engine stop button/Engine stop lanyard switch
㉓ Tilt lock lever
㉔ Remote control box
㉕ Oil pressure indicator panel

* May not be exactly as shown; also may not be included as standard equipment on all models.

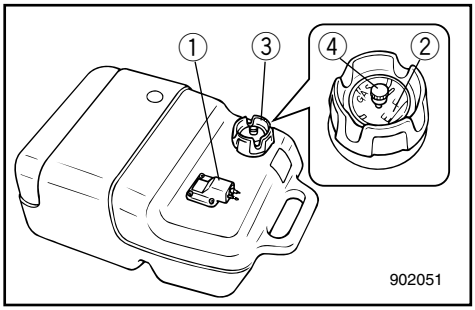
EMU00039

OPERATIONS OF CONTROLS AND OTHER FUNCTIONS

EMU01465

FUEL TANK

If your model included a portable fuel tank, its parts and functions are as follows.



① Fuel hose joint
② Fuel meter (if equipped)
③ Fuel tank cap
④ Air vent screw (if equipped)

EMU00042

Fuel Hose Joint

This connector is provided for connecting or disconnecting fuel hose.

EMU01531

Fuel Meter

This meter is on the fuel tank cap. It shows the approximate amount of fuel remaining in the tank.

EMU00045

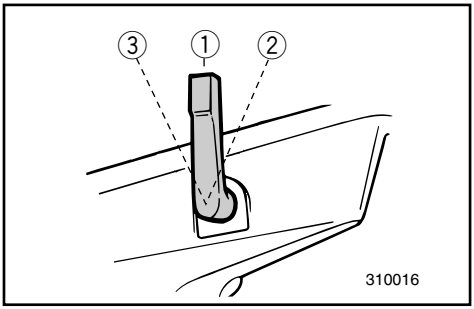
Fuel Tank Cap

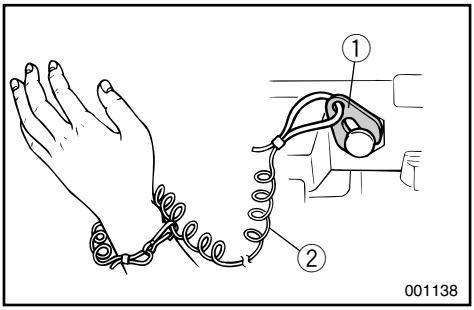
This cap is for filling fuel. To remove it, turn it counterclockwise.

EMU00046

Air Vent Screw

This screw is on the fuel tank cap. To loosen it, turn it counterclockwise.





EMU00051

GEAR SHIFT LEVER (for Tiller control model)

Turning the gear-shift lever towards you engages the clutch with the forward gear so that the boat moves ahead. Turning the lever away from you engages the reverse gear so that the boat moves astern.

① Neutral
② Forward
③ Reverse

EMU00931

ENGINE STOP LANYARD SWITCH (for Tiller control model)

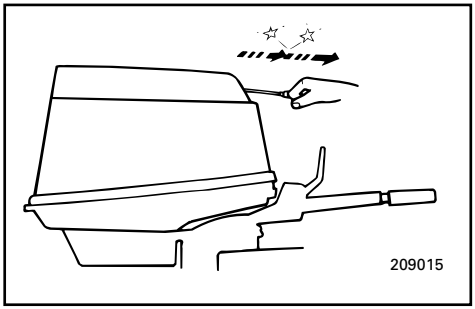
The lock-plate ① must be attached to the engine stop lanyard switch for the engine to run. The lanyard ② should be attached to a secure place on the operator's clothing, or arm or leg. Should the operator fall overboard or leave the helm, the lanyard will pull out the lock plate, stopping ignition to the engine. This will prevent the boat from running away under power.

⚠WARNING

- **Attach the lanyard to a secure place on your clothing, your arm or leg while operating.**
- **Do not attach the lanyard to clothing that could tear loose. Do not route the lanyard in such a way that it could become entangled, preventing it from functioning.**
- **Avoid accidentally pulling the lanyard during normal operation. Loss of engine power means the loss of most steering control. Also, without engine power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.**

NOTE:

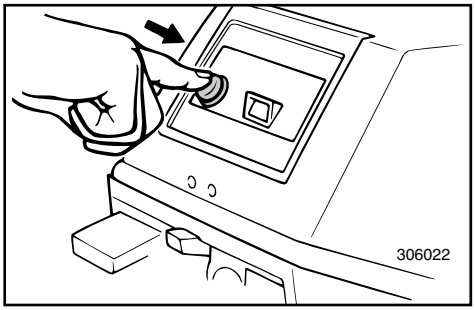
The engine cannot be started with the lock-plate removed.



EMU00059

RECOIL STARTER HANDLE (If equipped)

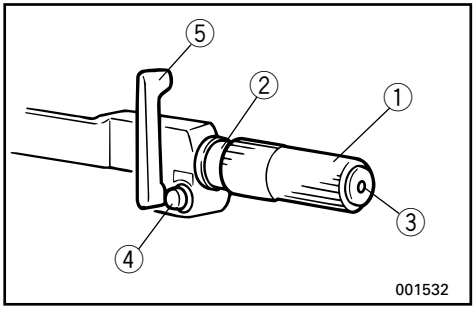
Pull the handle gently until resistance is felt. Then vigorously pull the handle straight out to crank the engine to start it.



EMU00060

STARTER BUTTON (for Tiller control model)

When you push the starter button, the electric starter motor cranks the engine to start it.



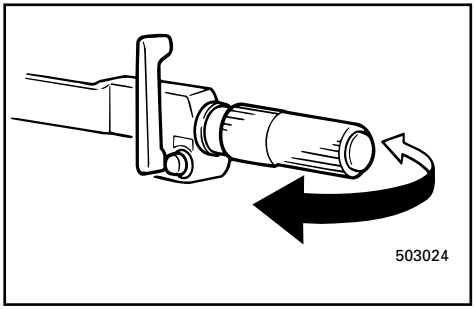
EMU00943

TILLER HANDLE (for Tiller control model)

T9.9EH

Moving the tiller handle sideways to adjust the steering direction. In addition, this handle contains the functions as follows.

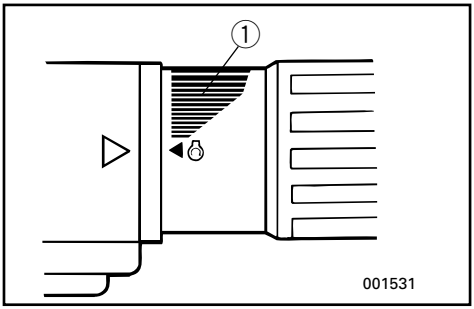
① Throttle control grip
② Throttle indicator
③ Throttle friction adjusting knob/screw
④ Engine stop button
⑤ Gear shift lever



EMU00065

Throttle Control Grip

The throttle control grip is on the tiller handle. Turn the grip counterclockwise to increase speed and clockwise to decrease speed.

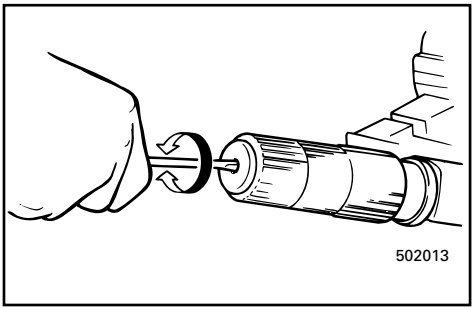


EMU00067

Throttle Indicator

The fuel consumption curve on the throttle indicator shows the relative amount of fuel consumed for each throttle position. Choose the setting that offers the best performance and fuel economy for the desired operation.

① Throttle indicator



EMU01293

Throttle friction adjusting screw/ knob

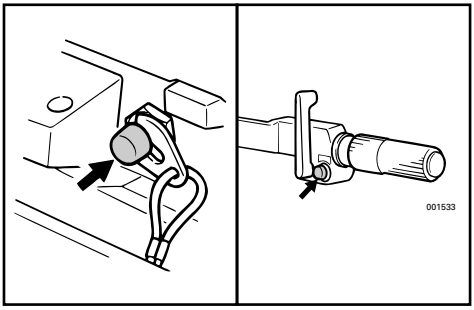
A friction device in the tiller handle provide resistance to movement of the throttle grip. This is adjustable for operator preference. An adjusting screw/knob is located within the tiller handle.

Resistance	Knob/Screw
Increase	Turn clockwise
Decrease	Turn counterclockwise

When constant speed is desired, tighten the adjusting screw/bolt to maintain the desired throttle setting.

⚠WARNING

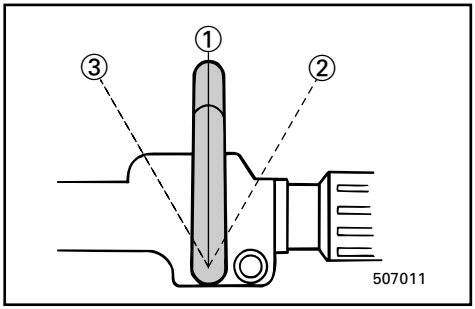
Do not over tighten the friction adjusting screw/ knob.
If there is too much resistance, it may be difficult to move the throttle grip, which could result in an accident.



EMU00072

Engine Stop Button

Pushing this button opens the ignition circuit and stops the engine.

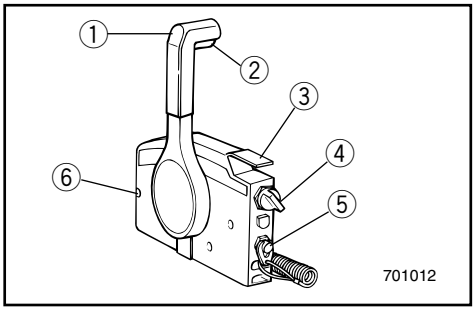


EMU00074

Gear shift lever

Turning the gear-shift lever forward (bow side) engages the clutch with the forward gear so that the boat moves ahead. Turning the lever backward (stern side) engages the reverse gear so that the boat moves astern.

① Neutral
② Forward
③ Reverse



EMU00095

REMOTE CONTROL

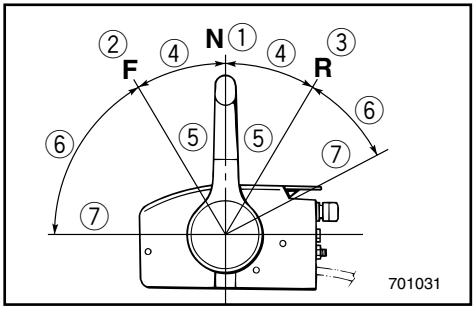
Both the shifter and the throttle are actuated by the remote control lever. In addition, this control also has the electrical switches.

① Remote control lever
② Neutral interlock trigger
③ Neutral throttle lever
④ Main switch
⑤ Engine stop lanyard switch
⑥ Throttle friction adjusting screw

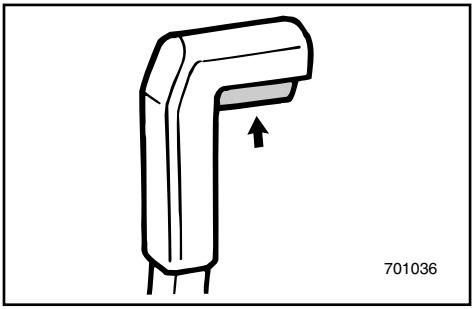
EMU00098

Remote Control Lever

Moving the lever forward from the Neutral position engages Forward gear. Pulling the lever back from Neutral engages Reverse. The engine will continue to run at idle until the lever is moved about 35° (a detent can be felt). Moving the lever farther opens the throttle, and the engine will begin to accelerate.



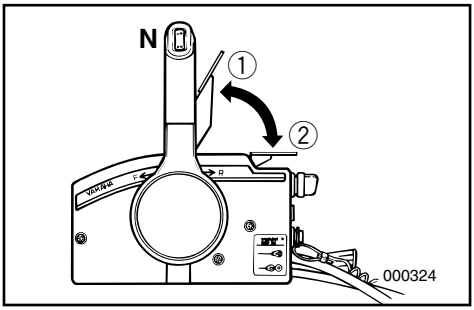
① Neutral
② Forward
③ Reverse
④ Shift
⑤ Fully closed
⑥ Throttle
⑦ Fully open



EMU00099

Neutral Interlock Trigger

To shift out of Neutral, the neutral interlock trigger of the remote control lever must first be pulled up.



EMU00100

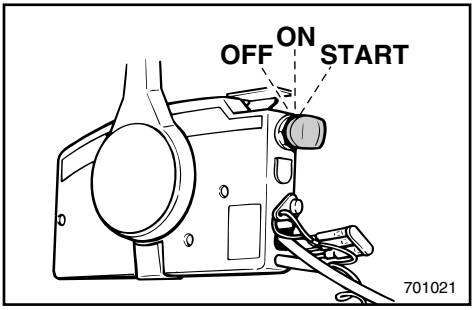
Neutral Throttle Lever

To open the throttle without shifting into either Forward or Reverse, place the remote control lever in the Neutral position and lift the neutral throttle lever.

NOTE:

The neutral throttle lever will operate only when the remote control lever is in Neutral. The remote control lever will operate only when the neutral throttle lever is in the closed position.

① Fully open
② Fully closed



EMU00101

Main switch

The main switch controls the ignition system; its operation is described below.

- **OFF**

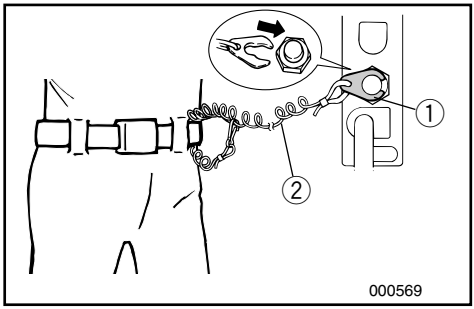
Electrical circuits switched off.
(The key can be removed.)

- **ON**

Electrical circuits switched on.
(The key cannot be removed.)

- **START**

Starter-motor will turn and start engine.
(When the key is released, it returns automatically to “ON”.)



EMU00934

Engine Stop Lanyard Switch

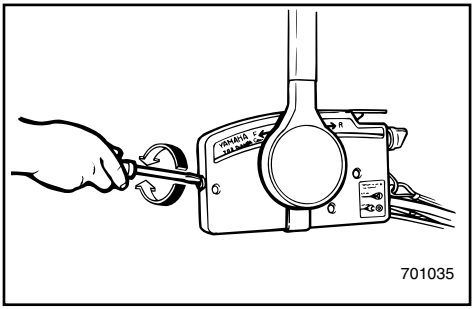
The lock-plate ① must be attached to the engine stop lanyard switch for the engine to run. The lanyard ② should be attached to a secure place on the operator's clothing, or arm or leg. Should the operator fall overboard or leave the helm, the lanyard will pull out the lock plate, stopping ignition to the engine. This will prevent the boat from running away under power.

⚠WARNING

- **Attach the lanyard to a secure place on your clothing, your arm or leg while operating.**
- **Do not attach the lanyard to clothing that could tear loose. Do not route the lanyard in such a way that it could become entangled, preventing it from functioning.**
- **Avoid accidentally pulling the lanyard during normal operation. Loss of engine power means the loss of most steering control. Also, without engine power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.**

NOTE:

The engine cannot be started with the lock-plate removed.



EMU01155

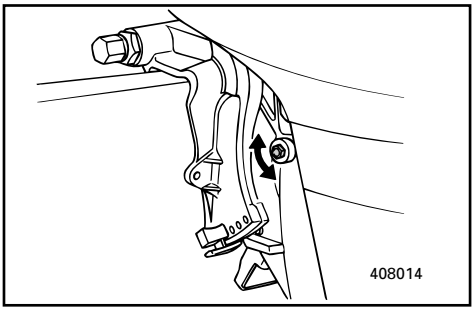
Throttle Friction Adjusting Screw

A friction device in the remote control box provides adjustable resistance to movement of the remote control lever, and can be set according to operator preference. An adjusting screw is located on the front of the remote control box.

Resistance	Screw
Increase	Turn clockwise
Decrease	Turn counterclockwise

⚠WARNING

Do not overtighten the friction adjusting screw. If there is too much resistance, it may be difficult to move the lever, which could result in an accident.



EMU00108

STEERING FRICTION ADJUSTING SCREW (for Tiller control model)

A friction device provides resistance to steering movement. This is adjustable for operator preference. An adjusting screw/bolt is located on the swivel bracket.

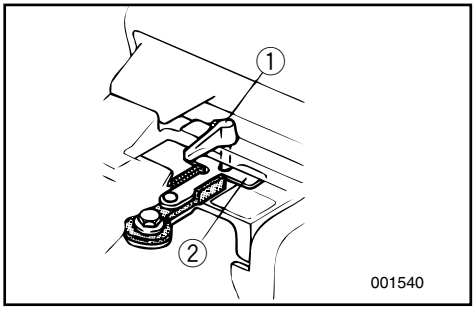
EMU01296

Adjustment

Resistance	Screw/Bolt
Increased	Turn clockwise
Decreased	Turn counterclockwise

⚠WARNING

Do not over tighten the friction screw/bolt. If there is too much resistance, it may be difficult to steer, which could result in an accident.



EMU01875

Steering Lock Device
T9.9EH

A boat with a rudder (such as a sailboat) can be steered with the boat's rudder if the engine is locked in the straight-ahead position. Lock the steering lock lever to the steering lock plate.

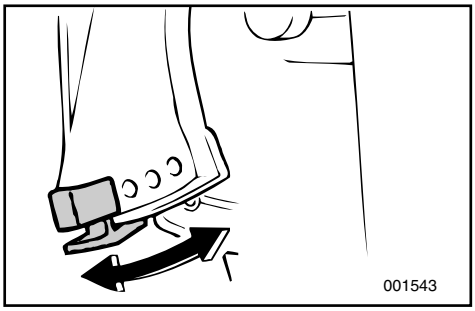
① Steering lock lever
② Steering lock plate

NOTE:

If the sailboat does not move straight ahead when engine is locked with the steering lock lever and the boat's rudder is set straight, readjust the outboard's steering handle angle with the adjustment bolts.
If the engine is forced to turn right or left when the steering is locked, the steering plate is designed to break to protect the outboard motor. If the plate breaks, remove the screw and replace the plate.

NOTE:

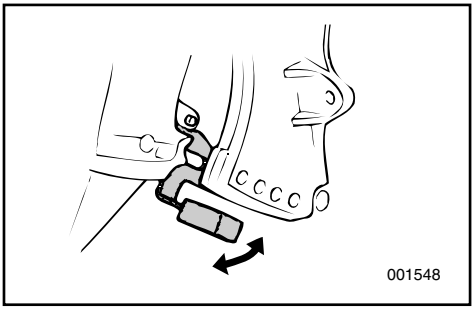
A spare plate is contained in the outboard's original packing.



EMU01297

TRIM ANGLE ADJUSTING ROD

The position of the trim angle adjusting rod determines the minimum trim angle of the outboard motor in relation to the transom.



EMU00116

SHALLOW WATER LEVER (If equipped)

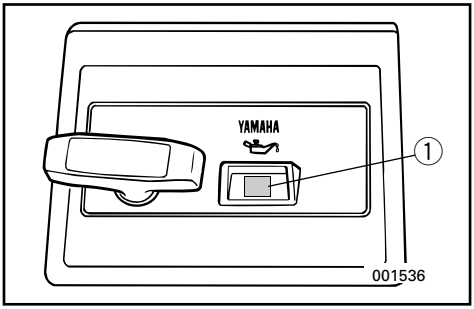
Lifting this lever will tilt the motor up partially to provide more clearance when operating in shallow water.

EMU01873

Oil Pressure Indicator

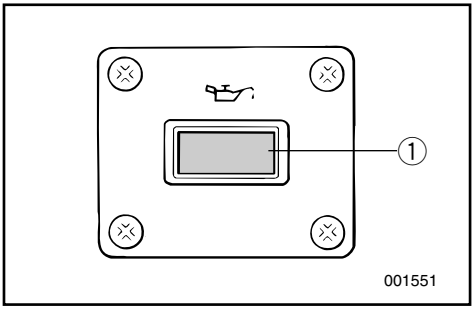
The oil pressure lamp is on when the engine is running and oil pressure is normal. If oil pressure drops too low, the lamp goes off. As an additional alert of the low oil pressure condition, the engine runs roughly and will not exceed about 2,000 rpm.

If the oil lamp goes out or does not come on when the engine is running, stop the engine as soon as it is safe to do so. Check oil level and add oil as needed. If the lamp goes off when the oil level is correct, consult your Yamaha dealer.

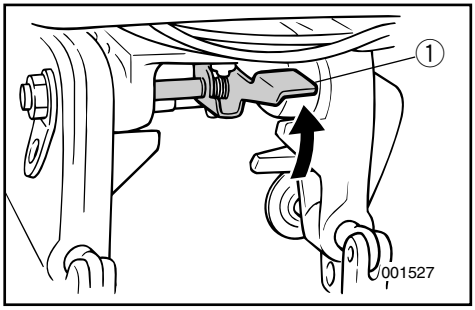


CAUTION:

Do not continue to run the engine if the oil pressure indicator lamp is off. Serious engine damage could occur.



① Oil pressure indicator lamp



EMU00152

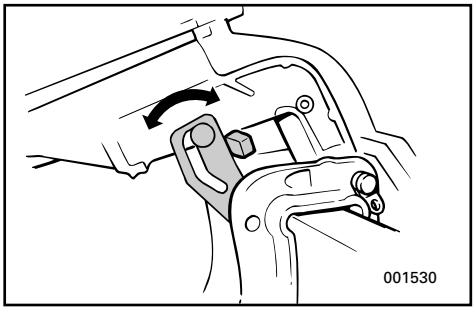
TILT LOCK MECHANISM (for Manual tilt model)

The tilt-lock mechanism is used to prevent reverse thrust from the propeller lifting the outboard motor when reversing.

To lock it, set the tilt-lock lever in the up position.

To release it, push the tilt-lock lever down.

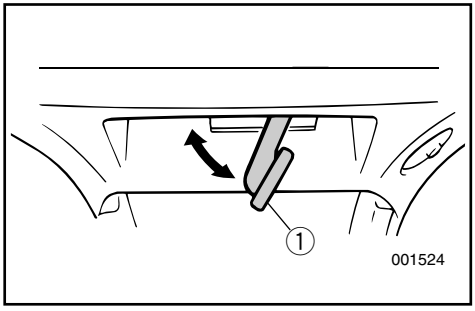
① Tilt-lock lever



EMU00158

TILT SUPPORT LEVER

To keep the outboard motor in the tilted-up position, push the tilt support lever so the pin locks in the upper slot.



EMU00162

TOP COWLING LOCK LEVER

To remove the engine top cowling, turn the lock lever. Then lift off the cowling. When replacing the cowling, check to be sure it fits properly in the rubber seal. Then lock the cowling again by moving the lever upward.

① Top cowling lock lever

-MEMO-

E

EMU00174

Chapter 3
OPERATION

INSTALLATION.....3-1
Mounting the outboard motor.....3-2
Clamping the outboard motor 3-5
Charging battery 3-6
BREAKING IN (RUNNING IN) ENGINE.....3-7

PRE-OPERATION CHECKS.....3-8
Checking the engine oil level 3-9
FILLING FUEL 3-10

STARTING ENGINE.....3-11

WARMING UP ENGINE 3-16

CHECKPOINTS AFTER STARTING ENGINE.....3-17

SHIFTING.....3-18
Forward.....3-18
Reverse.....3-19
STOPPING ENGINE 3-20

TRIMMING OUTBOARD MOTOR.....3-21
Adjusting trim angle 3-22
TILTING UP/DOWN.....3-24

CRUISING IN SHALLOW WATER 3-26

CRUISING IN OTHER CONDITIONS ...3-28
Cruising in salt water 3-28
Cruising in turbid water 3-28

3

EMU00175

INSTALLATION

CAUTION:

Incorrect engine height or obstructions to smooth water flow (such as the design or condition of the boat or accessories such as transom ladders/depth finder transducers) can create airborne water spray while the boat is cruising. Severe engine damage may result if the motor is operated continuously in the presence of airborne water spray.

NOTE:

During water testing check the buoyancy of the boat, at rest, with its maximum load. Check that the static water level on the exhaust housing is low enough to prevent water entry into the powerhead, when water rises due to waves when the outboard is not running.

EMU01478

MOUNTING THE OUTBOARD MOTOR

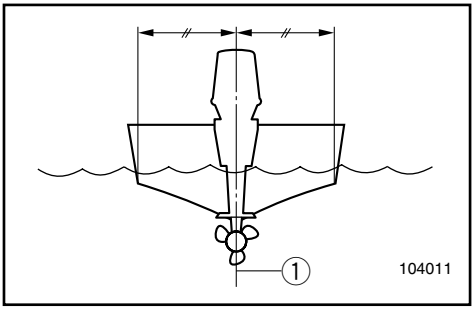
⚠WARNING

- **Overpowering a boat may cause severe instability. Do not install an outboard motor with more horsepower than the maximum rating on the capacity plate of the boat. If the boat does not have a capacity plate, consult the boat manufacturer.**
- **The information presented in this section is intended as reference only. It is not possible to provide complete instructions for every possible boat/motor combination. Proper mounting depends in part on experience and the specific boat/motor combination.**

⚠WARNING

Improper mounting of the outboard motor could result in hazardous conditions such as poor handling, loss of control, or fire hazards. Observe the following:

- **For permanently mounted models, your dealer or other person experienced in proper rigging should mount the motor. If you are mounting the motor yourself, you should be trained by an experienced person.**
- **For portable models, your dealer or other person experienced in proper outboard motor mounting should show you how to mount your motor.**



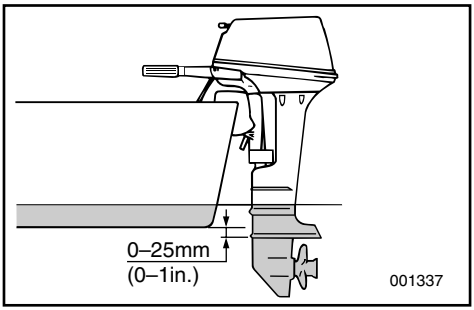
Mount the outboard motor on the center line (keel line) of the boat, and ensure that the boat itself is well balanced. Otherwise, the boat will be hard to steer. For boats without a keel or which are asymmetrical, consult your dealer.

① Center line (keel line)

EMU01298

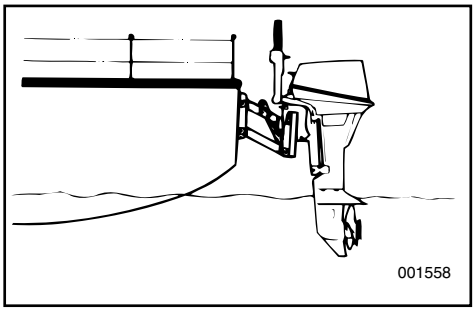
Mounting Height

To run your boat at optimum efficiency, the water-resistance (drag) of the boat and outboard motor must be made as little as possible. The mounting-height of the outboard motor greatly affects the water-resistance. If the mounting-height is too high, cavitation tends to occur, thus reducing the propulsion; and if the propeller tips cut the air, the engine speed will rise abnormally and cause the engine to overheat. If the mounting-height is too low, the water-resistance will increase and thereby reduce engine efficiency. Mount the engine so that the anti-cavitation plate is between the bottom of the boat and a level 25 mm (1 in.) below it.



NOTE:

- The optimum mounting height of the outboard motor is affected by the boat/motor combination and the desired use. Test runs at different heights can help determine the optimum mounting height.
- Refer to the section “TRIMMING OUTBOARD MOTOR” for instructions on setting the trim angle of the outboard.



EMU01301

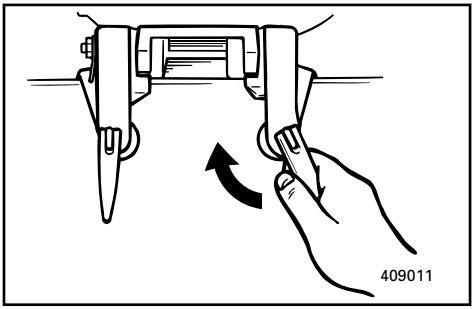
Points to note on Sailboats (for T9.9)

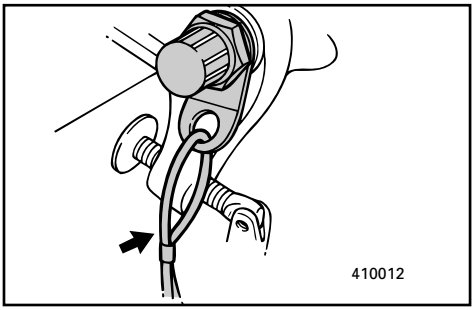
When mounting the outboard motor on the motor bracket of a sailboat, check the following points:

- When using the outboard, the cavitation plate should be 50 mm (2 in) or more below the water surface to prevent propeller damage. Because a sailboat can pitch considerably, mount the motor low enough so that the propeller will not contact the water surface during motor-powered operation.
- When sailing, the outboard motor should be able to be tilted up out of the water so the propeller does not contact the water spray. Disconnect the fuel line connection.
- Check that the outboard motor does not interfere with the rudder.
- Check that the engine can be easily started and stopped.
- Check the ease of operating the gear shift and throttle control.
- If mounting the outboard motor on a well-type boat, exhaust gases and blow-by gas flow must be allowed to exit the boat. A special kit designed for this purpose can be ordered through your Yamaha dealer.

NOTE:

Refer to the section “TRIMMING OUTBOARD MOTOR” for instructions on setting the trim angle of the outboard.





EMU01318

CLAMPING THE OUTBOARD MOTOR

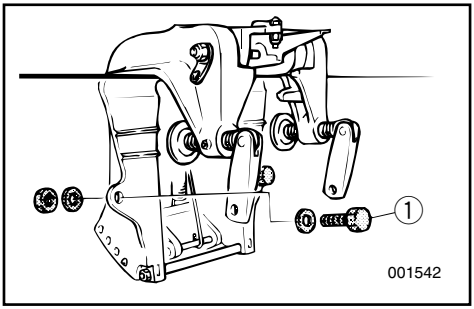
Manual tilt model

1) Place the outboard on the transom so that it is positioned as close to the center as possible. Tighten the transom clamp screws evenly and securely. Check the clamp-screws for tightness occasionally during operation of the motor as they can work loose due to engine vibration.

⚠WARNING

Loose clamp screws could allow the motor to move on the transom or fall off the transom. This could cause loss of control and serious injury. Make sure the transom screws are tightened securely. Occasionally check the screws for tightness during operation.

2) An engine restraint cable or chain should be used. Attach one end to the engine restraint cable attachment point and the other to a secure mounting point on the boat. Otherwise, the engine could be completely lost if it accidentally falls off the transom.
   Secure the clamp bracket to the transom with the bolts provided with the outboard. For details, consult your dealer.



⚠WARNING

Avoid using bolts, nuts or washers other than those contained in the engine packaging. If used, they must be of at least the same quality of material and strength and must be tightened securely. After tightening, test run the engine and check their tightness.

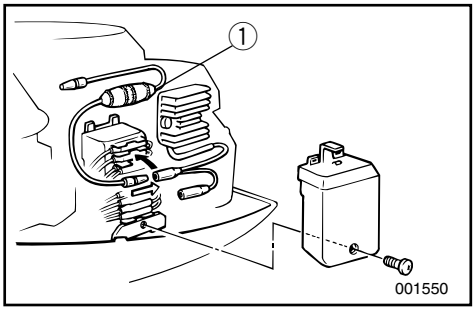
① Motor mounting parts

EMU01876

CHARGING BATTERY

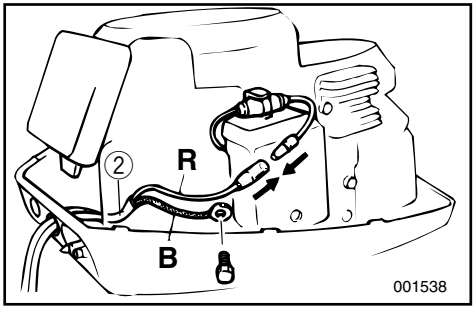
For T9.9MH

If an accessory battery charging is required, proceed the following steps for connecting the charging circuit to the battery. The charge lead and fuse holder for making the circuit are provided in the packing.



1) Remove the top cowling and remove the CDI unit cover.
2) Connect one of the fuse holder terminals to the red free terminal fixed with the red lead from the rectifier regulator.

① Fuse holder



3) Reinstall the CDI unit cover and fit the fuse holder onto the top side of the cover.
4) Connect the other fuse holder terminal to the red terminal of the charge lead. Secure the black terminal (ground) of the charge lead to the engine, together with the CDI unit ground terminal.

② Charge lead

5) Pull out the charge lead through the grommet on the port and front side of the bottom cowling.
6) To connect the leads to the battery, see “Checking battery” for the correct procedure.

EMU00224

BREAKING IN (RUNNING IN) ENGINE

Your new engine requires a period of break-in (running-in) to allow mating surfaces of moving parts to wear-in evenly. Correct break-in (running-in) will help ensure proper performance and longer engine life.

CAUTION:

Failure to follow the break-in (running-in) procedure may result in reduced engine life or even severe engine damage.

Break-in (running-in) time: 10 hours

EMU01367

Run the engine under load (in gear with a propeller installed) as follows.

1) For the first hour of operation:
   Run the engine at 2,000 r/min or at approximately half throttle.
2) For the second hour of operation:
   Run the engine at 3,000 r/min or at approximately three-quarter throttle.
3) For the next eight hours of operation:
   Avoid continuous operation at full throttle for more than five minutes at a time.
4) After the first 10 hours:
   Operate the engine normally.

EMU00204

PRE-OPERATION CHECKS

⚠WARNING

If any item in the pre-operation check is not working properly, have it inspected and repaired before operating the outboard motor. Otherwise, an accident could occur.

CAUTION:

Do not start the engine out of water. Overheating and serious engine damage can occur.

EMU00206

Fuel

- Check to be sure you have plenty of fuel for your trip.
- Make sure there are no fuel leaks or gasoline fumes.
- Check fuel line connections to be sure they are tight.
- Be sure the fuel tank is positioned on a secure, flat surface, and that the fuel hose is not twisted or flattened, or likely to contact sharp objects.

EMU00208

Oil

- Check the level of the oil in the sump with the dipstick. If necessary, add oil to bring the level up to the upper mark.

EMU00209

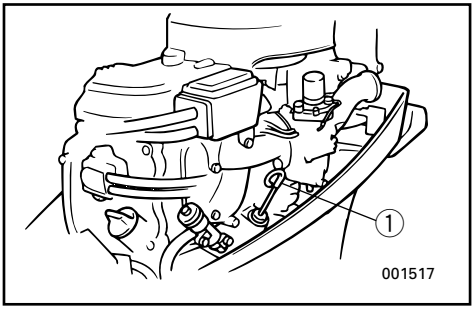
Controls

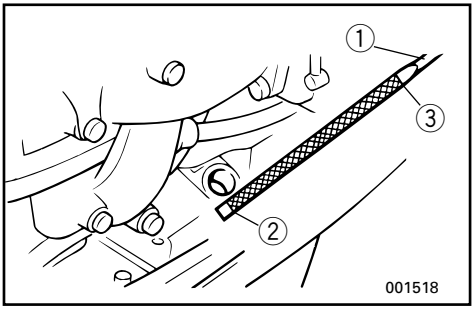
- Check throttle, shift, and steering for proper operation before starting the engine.
- The controls should work smoothly, without binding or unusual free play.
- Look for loose or damaged connections.
- Check operation of the starter and stop switches when the outboard motor is in the water.

EMU00210

Engine

- Check the engine and engine mounting.
- Look for loose or damaged fasteners.
- Check the propeller for damage.



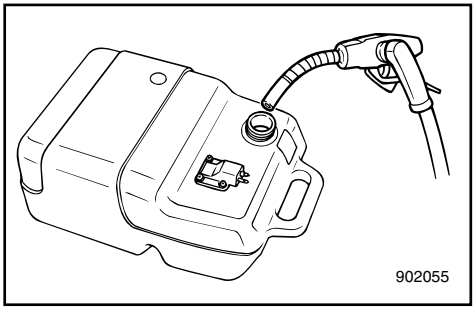


EMU01436

CHECKING THE ENGINE OIL LEVEL

1) Put the outboard motor in an upright position (not tilted).
2) Pull out the oil dipstick and wipe it clean.
3) Completely re-insert the dipstick and pull out it again.
4) Check the oil level using the dipstick to be sure the level falls between the upper and lower marks. Fill with oil if it is below the lower mark, or drain to the specified level if it is above the upper mark.

① Oil dipstick
② Lower level mark
③ Upper level mark



EMU00202

FILLING FUEL

1) Remove the fuel tank cap.
2) Fill the fuel tank carefully.
3) Close the cap securely after refueling. Wipe up any spilled fuel.

Fuel tank capacity:
Refer to SPECIFICATIONS, page 4-1.

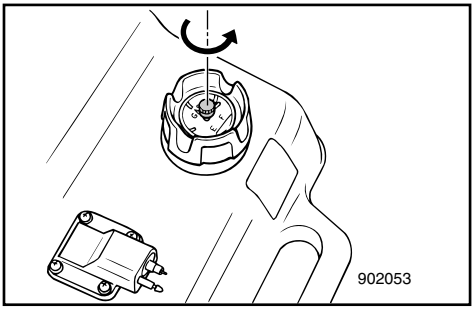
EMU00203

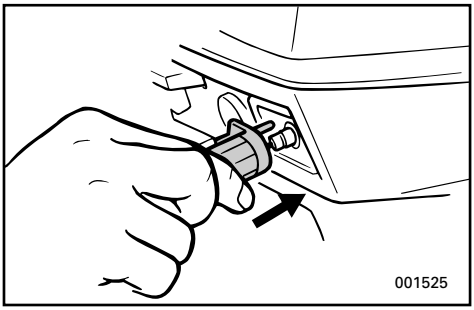
Ring Free Fuel Additive

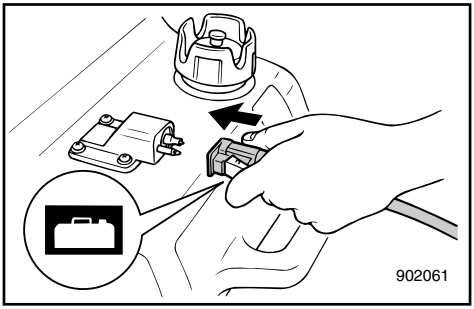
Gasoline is a precise blend of many different substances, each chosen to give certain characteristics. Gasoline blends have been changing in recent years in response to concerns about pollution and resulting emissions regulations. One of the most obvious changes has been the elimination of lead from most fuels.

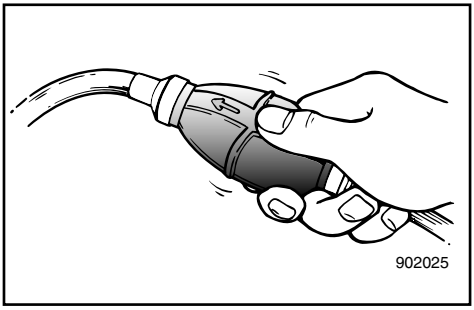
As gasoline has changed, the amount of additives such as aromatics and oxygenates has increased. These additives are important for the engines in passenger cars, but they can have detrimental effects in marine engines, because of increased deposits in the combustion chamber. When enough deposits collect, piston rings begin sticking. Performance drops and engine wear increases dramatically.

While many additives available may reduce deposits, Yamaha recommends the use of **Ring Free Fuel Additive**, available from your Yamaha dealer. Ring Free has repeatedly proven its ability to clean combustion deposits from inside the engine, notably the critical piston-ring-land area, and fuel system components. Follow product labeling for use instructions.









EMU01461

STARTING ENGINE

⚠WARNING

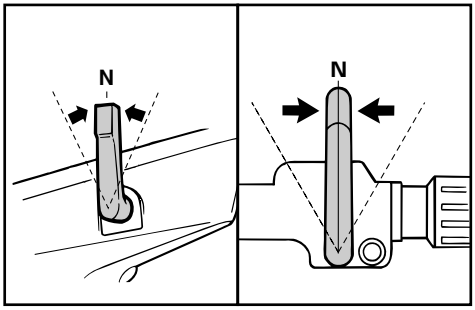
- **Before starting the engine, make sure that the boat is tightly moored and that you can steer clear of any obstructions. Be sure there are no swimmers in the water near you.**
- **When the air vent screw is loosened, gasoline (petrol) vapor will be released. Gasoline (petrol) is highly flammable, and its vapors are flammable and explosive. Refrain from smoking, and keep away from open flames and sparks while loosening the air vent screw.**
- **This product emits exhaust gases which contain carbon monoxide, a colorless, odorless gas which may cause brain damage or death when inhaled. Symptoms include nausea, dizziness, and drowsiness. Keep cockpit and cabin areas well ventilated. Avoid blocking exhaust outlets.**

1) If there is an air vent screw on the fuel tank cap, loosen it 2 or 3 turns.
2) If there is a fuel joint on the motor, firmly connect the fuel line to the joint. Then firmly connect the other end of the fuel line to the joint on the fuel tank.

NOTE:

During engine operation place the tank horizontally, or fuel cannot be drawn from the fuel tank.

3) Squeeze the primer bulb with the outlet end up until you feel it become firm.



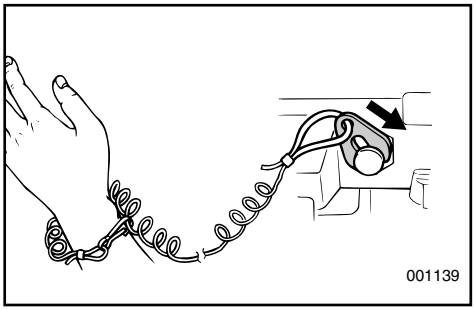
EMU01497

PROCEDURE FOR TILLER CONTROL MODEL

4) Place the gear-shift lever in the neutral position.

NOTE:

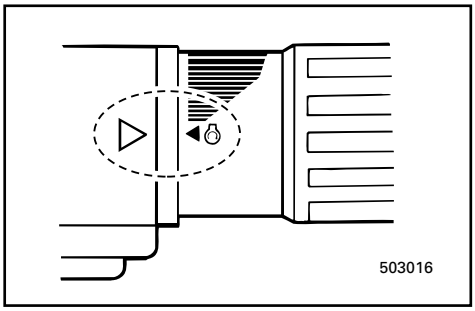
The start-in-gear protection device prevents the engine from starting except when in Neutral.



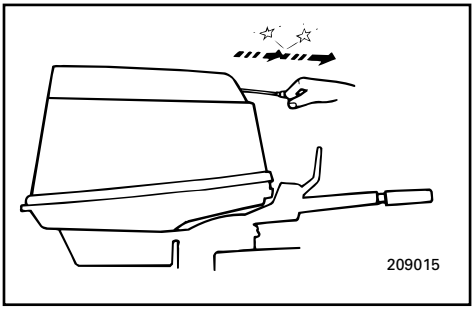
5) Attach the engine stop switch lanyard to a secure place on your clothing, or your arm or leg. Then, install the lock plate on the other end of the lanyard in the engine stop switch.

⚠WARNING

- **Attach the engine stop switch lanyard to a secure place on your clothing, your arm or leg while operating.**
- **Do not attach the lanyard to clothing that could tear loose. Do not route the lanyard where it could become entangled, preventing it from functioning.**
- **Avoid accidentally pulling the lanyard during normal operation. Loss of engine power means the loss of most steering control. Also, without engine power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.**



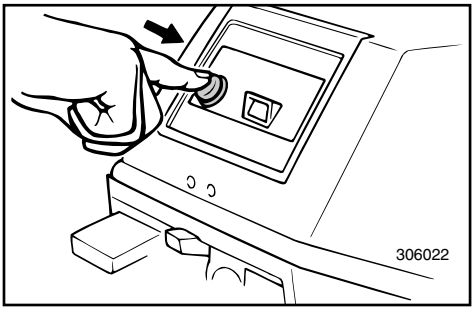
6) Place the throttle control grip in the "START" position.



EMU00914

Manual Start Model

7) Pull the starter handle slowly until you feel resistance. Then, give a strong pull straight out to crank and start the engine. Repeat it, if necessary.
8) After the engine starts, return the starter handle slowly to the original position before releasing it.



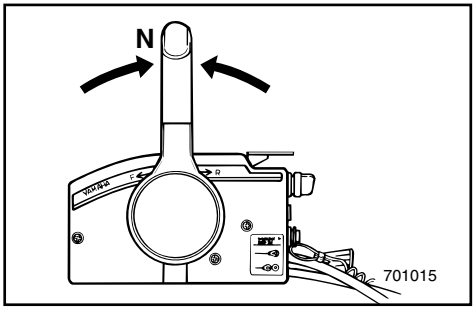
EMU00245*

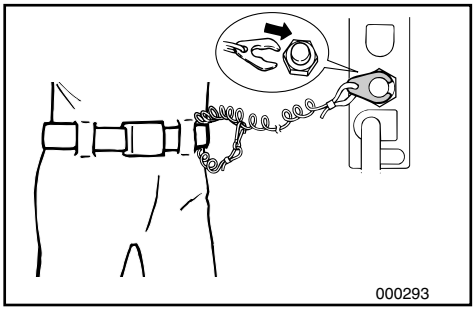
Electric Start Model

7) Push the starter button to start the starting motor.
8) Immediately after the engine starts, release the starter-switch to return it to its home position.

CAUTION:

- **Do not push the starter-switch when the engine is running.**
- **Do not keep the starter-motor turning for more than 5 seconds. If the starter-motor is run continuously for more than 5 seconds, the battery will rapidly become exhausted and it will be impossible for it to start the engine. If the engine does not start within 5 seconds, release your hand from starter-switch, wait 10 seconds, and then crank the engine again.**





EMU00247

PROCEDURE FOR REMOTE CONTROL MODEL

4) Place the remote control lever in the Neutral position.

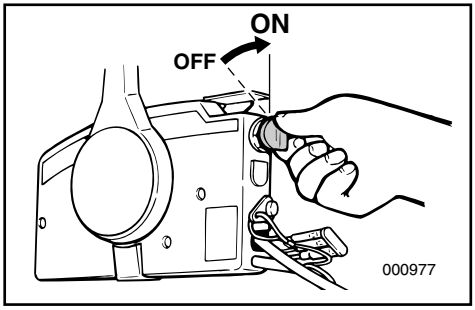
NOTE:

The start-in-gear protection device prevents the engine from starting except when in Neutral.

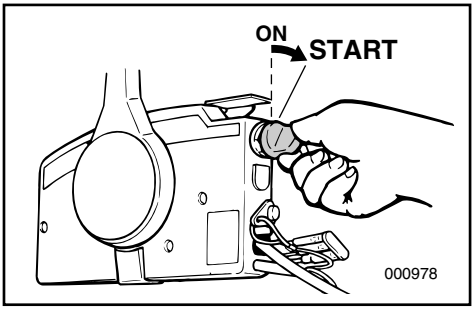
5) Attach the engine stop switch lanyard to a secure place on your clothing, or your arm or leg. Then, install the lock plate on the other end of the lanyard in the engine stop switch.

⚠WARNING

- **Attach the engine stop switch lanyard to a secure place on your clothing, your arm or leg while operating.**
- **Do not attach the lanyard to clothing that could tear loose. Do not route the lanyard where it could become entangled, preventing from functioning.**
- **Avoid accidentally pulling the lanyard during normal operation. Loss of engine power means the loss of most steering control. Also, without engine power, the boat could slow rapidly. This could cause people and objects in the boat to be thrown forward.**



6) Turn the main switch to “ON”.



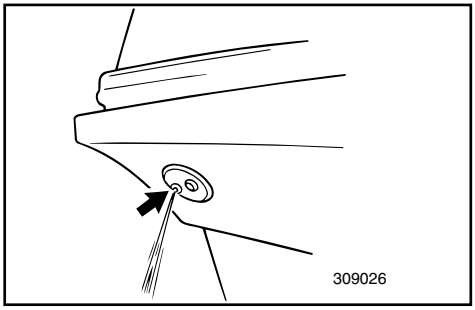
EMU00949

Electric Start Model

7) Turn the main switch to “START”, and hold it for a maximum of 5 seconds.
8) Immediately after the engine starts, release the main switch to return it to “ON”.

CAUTION:

- **Do not turn the main switch to “START” when the engine is running.**
- **Do not keep the starter-motor turning for more than 5 seconds. The battery will rapidly become exhausted and it will be impossible for it to start the engine. If the engine does not start within 5 seconds, return the main switch to “ON”, wait 10 seconds, and then crank the engine again.**



EMU00258*

WARMING UP ENGINE

1) After starting the engine, allow it to idle for 3 minutes to warm up. Failure to do so will shorten engine life.
2) Be sure the oil pressure indicator stays on after starting the engine.
3) Check for a steady flow of water from the cooling water pilot hole.

CAUTION:

- **If the oil pressure indicator goes off after the engine starts, stop the engine. Otherwise, serious engine damage could occur. Check the oil level and add oil if necessary. Consult your Yamaha dealer if the cause cannot be found.**
- **A continuous flow of water from the pilot hole shows that the water pump is pumping water through the cooling passages. If water is not flowing out of the pilot hole at all times while the engine is running, overheating and serious damage could occur. Stop the engine and check whether the cooling water inlet on the lower case is blocked. Consult your Yamaha dealer if the problem cannot be located and corrected.**

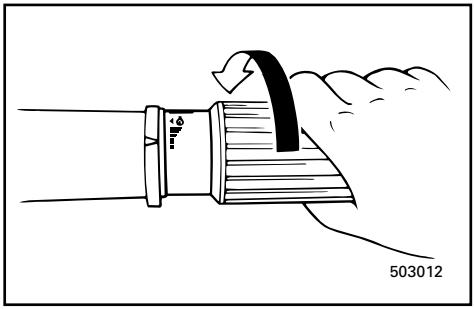
EMU01751*

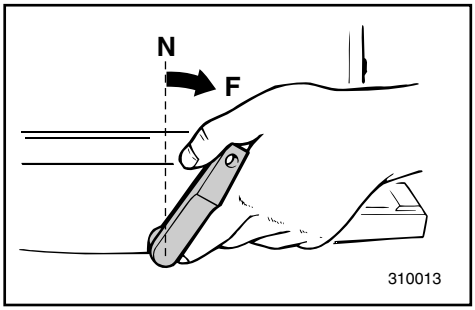
CHECKPOINTS AFTER STARTING ENGINE

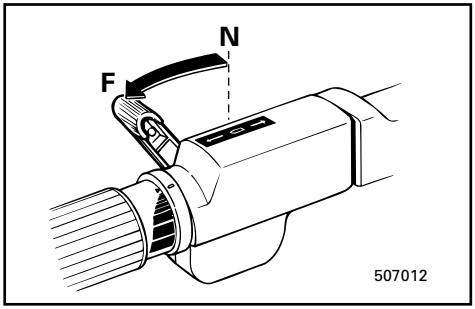
- Check for a steady flow of water from the cooling water pilot hole.
- Check that the oil pressure indicator is on. For further information, see Chapter 2, “Oil pressure indicator.”
- Check that the engine idle speed is stable after the engine has warmed up.

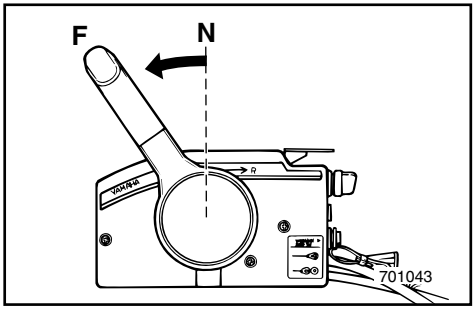
CAUTION:

If water is not flowing out of the pilot hole at all times while the engine is running, overheating and serious damage could occur. Stop the engine and check whether the cooling water inlet on the lower case is blocked. Consult your Yamaha dealer if the problem cannot be located and corrected.









EMU00261

SHIFTING

⚠WARNING

Before shifting, make sure there are no swimmers or obstacles in the water near you.

CAUTION:

To change the shifting position from forward to reverse or vice-versa, close the throttle first so that the engine idles (or runs at low speeds).

EMU00265

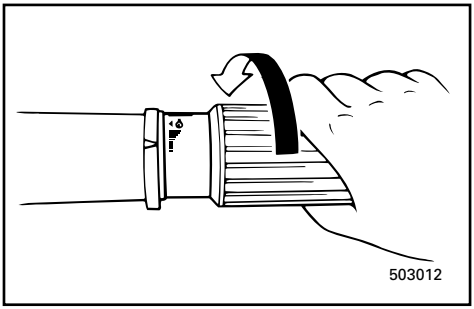
FORWARD

Tiller control model

1) Place the throttle control grip in the fully closed position.
2) Turn the gear-shift lever quickly and firmly from Neutral to Forward.

Remote control model

Pull up the neutral interlock trigger if equipped and move the remote control lever quickly and firmly from Neutral to Forward.



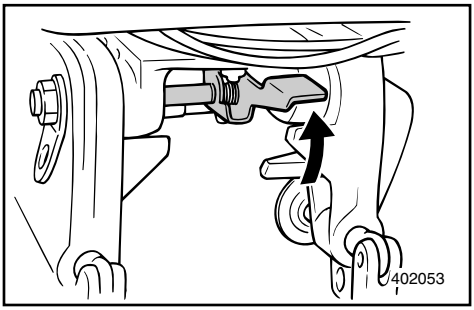
EMU01326

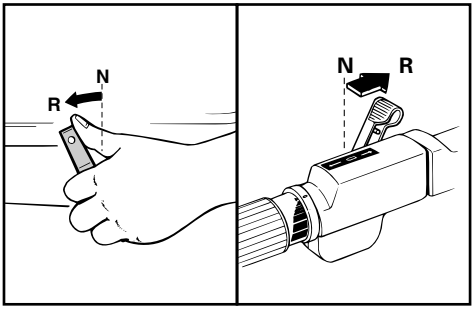
REVERSE

⚠WARNING

When operating in Reverse, go slowly. Do not open the throttle more than half. Otherwise, the boat may become unstable, which could result in loss of control and an accident.

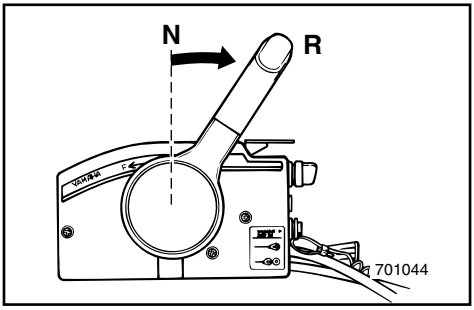
1) Place the throttle control grip in the fully closed position (for Tiller control model).
2) Check that the tilt-lock lever (for Manual tilt/Hydro-tilt model) is in the locked position.





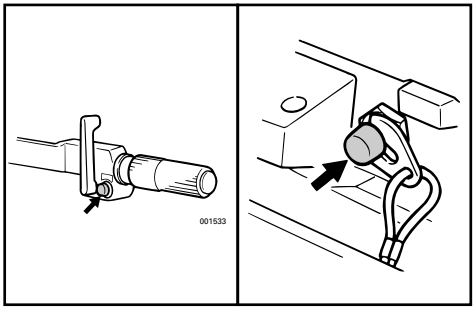
Tiller control model

3) Turn the gear-shift lever quickly and firmly from Neutral to Reverse.



Remote control model

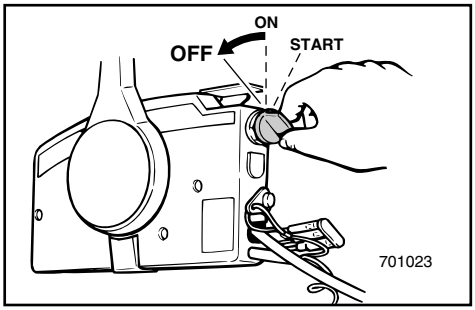
3) Pull up the neutral interlock trigger if equipped and move the remote control lever quickly and firmly from Neutral to Reverse.



EMU00273

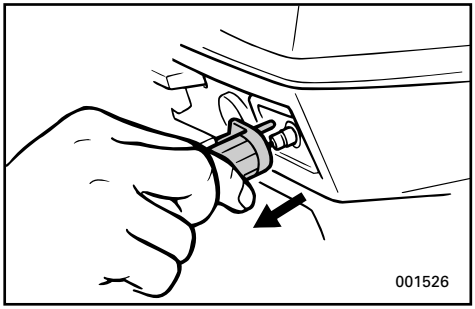
STOPPING ENGINE

Let it cool off for a few minutes at idle or low speed first. Stopping the engine immediately after operating at high speed is not recommended.

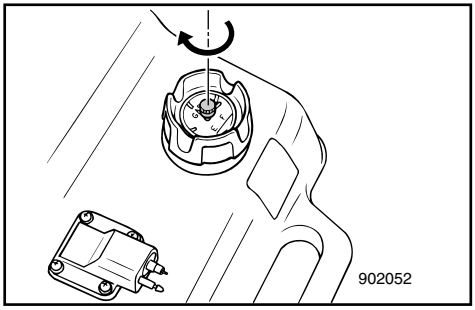


EMU00277

1) Push and hold the engine stop button or turn the main switch to “OFF”.



2) If the fuel joints are provided, disconnect the fuel line from the motor after stopping the engine.



3) Tighten the air vent screw on the fuel tank cap after stopping the engine, if it is equipped.
4) Remove the key if the boat will be left unattended.

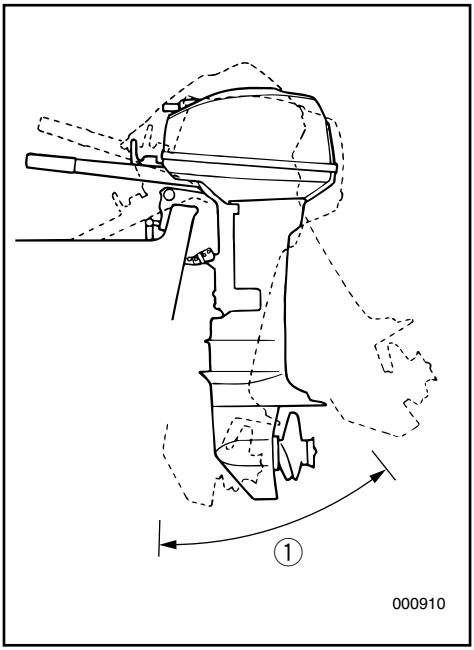
NOTE:

The engine can also be stopped by pulling the lanyard and removing the lock plate from the engine stop lanyard switch (then turning the main switch to “OFF”).

EMU01412

TRIMMING OUTBOARD MOTOR

The trim angle of the outboard motor helps determine the position of the bow of the boat in the water. The correct trim angle will help improve performance and fuel economy while reducing strain on the engine. The correct trim angle depends upon the combination of boat, engine, and propeller. Correct trim is also affected by variables such as the load in the boat, sea conditions, and running speed.



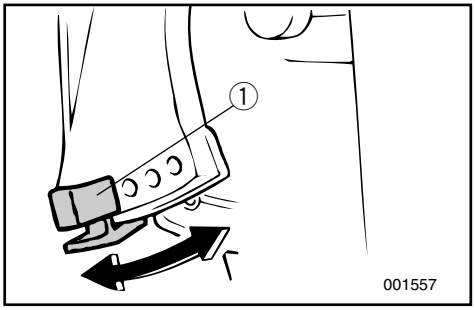
⚠WARNING

Excessive trim for the operating conditions (either trim up or trim down) can cause boat instability and can make steering the boat more difficult. This increases the possibility of an accident. If the boat begins to feel unstable or is hard to steer, slow down and/or readjust the trim angle.

NOTE:

Refer to the section “ADJUSTING TRIM ANGLE” for instructions on usage.

① Trim operating angle



ADJUSTING TRIM ANGLE

EMU00951

Manual tilt model

There are 4 or 5 holes provided in the clamp bracket to adjust the outboard motor trim angle.

1) Stop the engine.
2) Remove the trim angle adjusting rod ① from the clamp bracket while tilting the motor up slightly.
3) Reposition the rod in the desired hole.

To raise the bow ("trim-out"), move the rod away from the transom.

To lower the bow ("trim-in"), move the rod toward the transom.

Make test runs with the trim set to different angles to find the position that works best for your boat and operating conditions.

⚠WARNING

- **Stop the engine before adjusting the trim angle.**
- **Use care to avoid being pinched when removing or installing the rod.**
- **Use caution when trying a trim position for the first time. Increase speed gradually and watch for any signs of instability or control problems. Improper trim angle can cause loss of control.**

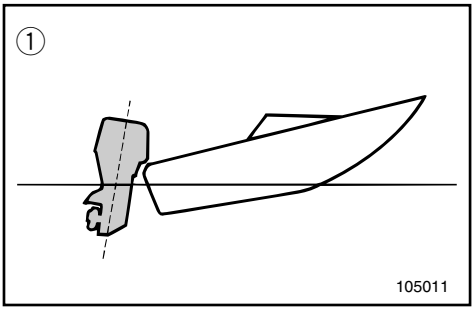
NOTE:

The outboard motor trim angle can be changed approximately 4 degrees by shifting the trim adjusting-rod one hole.

EMU01558

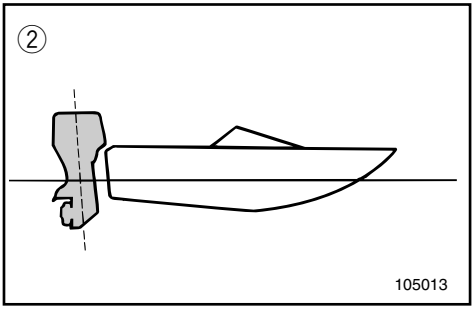
Bow Up

When the boat is on plane, a bow-up attitude results in less drag, greater stability and efficiency. This is generally when the keel line of the boat is up about 3 to 5 degrees. When trimmed out, the boat may have more tendency to steer to one side or the other. Compensate for this as you steer. The trim tab can also be adjusted to help offset this effect.



Too much trim-out puts the bow of the boat too high in the water. Performance and economy are decreased because the hull of the boat is pushing the water and there is more air drag.

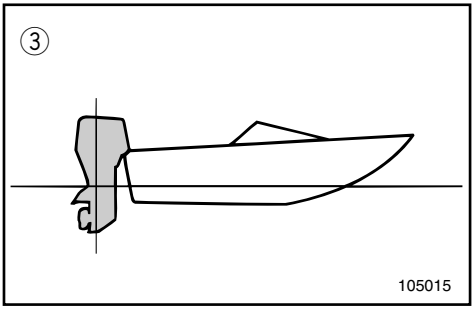
Excessive trim-up can cause the propeller to ventilate, which reduces performance further. When trimmed-out too much, a boat may “porpoise” (hop in the water), which could throw the operator and passengers overboard.



EMU01559

Bow Down

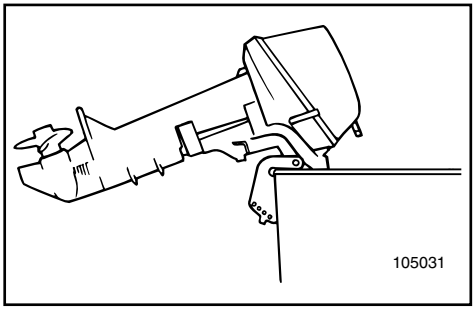
When the bow of the boat is down, it is easier to accelerate from a standing start onto plane.



Too much trim-in causes the boat to “plow” through the water, decreasing fuel economy and making it hard to increase speed.

Operating with excessive trim-in at higher speeds also makes the boat unstable. Resistance at the bow is greatly increased, heightening the danger of “bow steering” and making operation difficult and dangerous.

① Bow up
② Bow down
③ Optimum angle



EMU00285

TILTING UP/DOWN

If the engine will be stopped for some time, or if the boat is moored in shallows, the engine should be tilted up to protect the propeller and casing from damage by collision with obstructions, and also to reduce salt corrosion.

CAUTION:

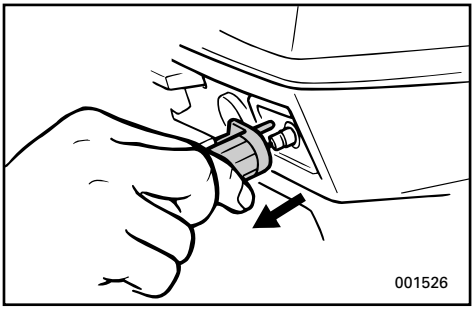
- **Before tilting the motor, follow the procedures under "STOPPING ENGINE". Never tilt the motor while the engine is running. Severe damage from overheating can result.**
- **Do not tilt up the engine by pushing the steering handle as this could break the handle.**

⚠WARNING

Be sure all people are clear of the outboard motor when adjusting the tilt angle, also be careful not to pinch any body parts between the drive unit and engine bracket.

⚠WARNING

Leaking fuel is a fire hazard. Disconnect the fuel line if the engine will be tilted for more than a few minutes. Otherwise, fuel may leak. (If the fuel connector is provided on the motor.)

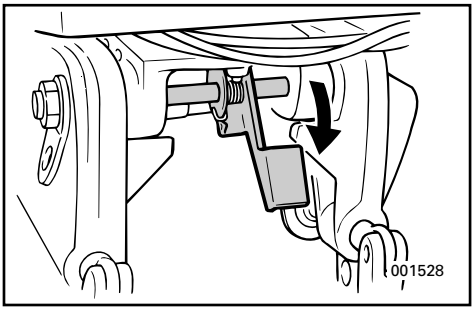


EMU00286

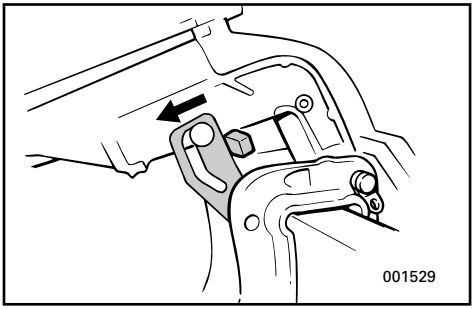
PROCEDURE FOR TILTING UP

Manual tilt model

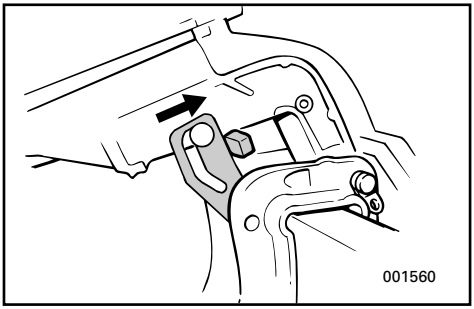
1) Remove the fuel-line connection from the motor. (If the fuel connector is provided on the motor.)



2) Place the tilt-lock lever in Release.



3) Hold the rear of the top cowling with one hand, tilt the engine up, and turn the tilt-support lever to the locked position and support the engine.



EMU00297

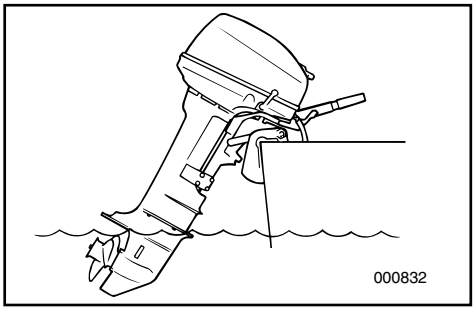
PROCEDURE FOR TILTING DOWN

Manual tilt model

1) Return the tilt support lever tilting up the engine slightly.
2) Tilt down the engine.

EMU01370

CRUISING IN SHALLOW WATER



Manual tilt model

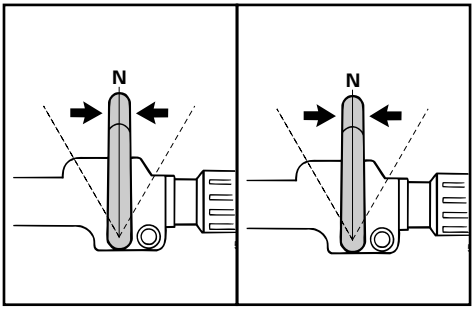
The outboard motor can be tilted up partially to allow operation in shallow water.

⚠WARNING

- **Place the gear shift in the Neutral position before using the shallow water cruising system.**
- **Run the boat at the lowest possible speed when using the shallow water cruising system. The tilt-lock mechanism does not work while the shallow water cruising system is being used. Hitting an underwater obstacle could cause the engine to lift out of the water, resulting in loss of control.**
- **Do not rotate the engine 180° and operate the boat in reverse. Place the gear-shift in the Reverse position to operate the boat in reverse.**
- **Use extra care when operating in reverse. Too much reverse thrust can cause the engine to lift out of the water, increasing the chance of accident and personal injury.**
- **Return the engine to its normal position as soon as the boat is back in deeper water.**

CAUTION:

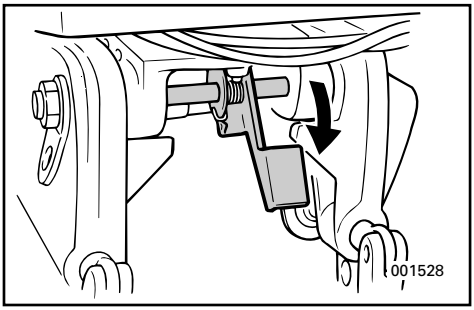
Place the gear-shift in the Neutral position before using the shallow water cruising system.



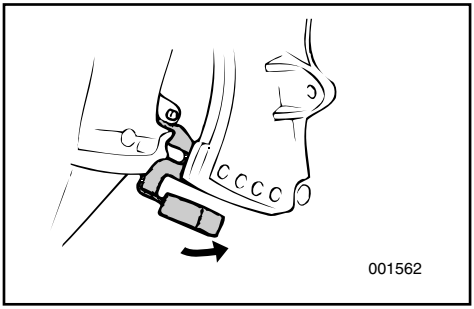
EMU00313

PROCEDURE

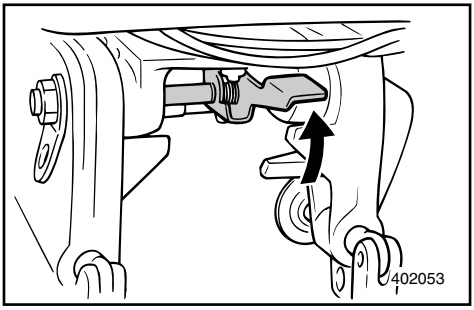
1) Place the gear shift lever in the neutral position.



2) Push the tilt-lock lever down to the release position.



3) Slightly tilt up the engine and pull the shallow water lever toward the transom.



4) To return the engine to the normal position, put the engine in Neutral, then slightly tilt up the engine. Push the shallow water lever down. Set the tilt-lock lever to the lock position and slowly tilt the engine down.

EMU00316

CRUISING IN OTHER CONDITIONS

CRUISING IN SALT WATER

After operating in salt water, wash out the cooling-water passages with fresh water to prevent them from becoming clogged-up with salt deposits.

NOTE:

Refer to cooling system flushing instructions in “TRANSPORTING AND STORING OUTBOARD MOTOR”.

CRUISING IN TURBID WATER

It is strongly recommended that the optional chromium-plated water-pump kit be installed if the outboard is to be used in turbid (muddy) water conditions.

-MEMO-

E

EMU00317

Chapter 4
MAINTENANCE

SPECIFICATIONS.....4-1

TRANSPORTING AND STORING OUTBOARD MOTOR.....4-3
Trailering outboard motor.....4-3
Storing outboard motor.....4-4
PERIODIC MAINTENANCE.....4-9
Replacement parts 4-9
Maintenance chart 4-10
Greasing 4-11
Cleaning and adjusting spark plug 4-12
Checking fuel system.....4-14
Inspecting fuel filter.....4-15
Adjusting idling speed.....4-16
Changing engine oil 4-17
Checking timing belt 4-19
Replacing fuse 4-20
Checking wiring and connectors.....4-20
Exhaust leakage 4-20
Water leakage.....4-20
Checking propeller.....4-21
Changing gear oil.....4-23
Cleaning fuel tank.....4-25
Inspecting and replacing anode(s).....4-26
Checking battery.....4-27
Checking bolts and nuts 4-29
Checking top cowling.....4-30
Motor exterior.....4-30
Coating the boat bottom 4-30

4

EMU01870*

SPECIFICATIONS

Item \ Model		Unit	F9.9MHB
DIMENSIONS			
Overall length		mm (in.)	863 (33.98)
Overall width		mm (in.)	392 (15.43)
Overall height	S/L/X	mm (in.)	— / 1,004 (39.53) / 1,131 (44.53)
Transom height	S/L/X	mm (in.)	— / 432 (17.01) / 559 (22.01)
Weight	S/L/X	kg (lb.)	— / 41.5 (92) / 42.5 (94)
PERFORMANCE			
Full throttle operating range		r/min	4,500–5,500
Maximum output		kW (HP) @ r/min	7.3 (9.9) @ 5,000
Idling speed (in neutral)		r/min	900–1,000
ENGINE			
Type			4-stroke, L2
Displacement		cm^3 (cu.in.)	232 (14.16)
Bore × stroke		mm (in.)	59 × 42.4 (2.32 × 1.67)
Ignition system			CDI system
Spark plug		NGK	CR6HS
Spark plug gap		mm (in.)	0.6–0.7 (0.02–0.03)
Control system			Tiller control
Starting system			Manual start
Valve clearance (cold engine)	IN	mm (in.)	0.15–0.20 (0.0059–0.0079)
	EX	mm (in.)	0.20–0.25 (0.0079–0.0098)
Battery			
Min. cold cranking amps (CCA/SAE)		amps at -18°C (-0.4°F)	—
Min. marine cranking amps (MCA/ABYC)		amps at 0°C (32°F)	—
Min. reserve capacity (RC/SAE)		minutes	—
Alternator output		V-A (W)	12- (80)
Starting carburetion system			Prime start
DRIVE UNIT			
Gear positions			Forward-Neutral-Reverse
Gear ratio			2.08 (27/13)
Trim and tilt system			Manual tilt
Propeller mark			J
FUEL AND OIL			
Recommended fuel			Regular unleaded gasoline
Fuel tank capacity		L (US gal, Imp gal)	25 (6.60, 5.50)
Recommended engine oil			4-stroke motor oil
		API	SE, SF, SG, SH, SJ
		SAE	10W-30, 10W-40
Engine oil capacity		L (US qt, Imp qt)	1.0 (1.06, 0.88)
Recommended gear oil			Hypoid gear oil (SAE90)
Gear oil capacity		cm^3 (US oz, Imp oz)	185 (6.25, 6.52)
TIGHTENING TORQUE			
Spark plug		N·m (kgf·m, lb·ft)	13 (1.3, 9.4)
Propeller nut		N·m (kgf·m, lb·ft)	17 (1.7, 12)
Engine oil drain bolt		N·m (kgf·m, lb·ft)	8 (0.8, 5.8)
Engine oil filter		N·m (kgf·m, lb·ft)	8 (0.8, 5.8)

F9.9ERB	T9.9EHB	T9.9ERB
575 (22.64) 325 (12.8) — / 1,131 (44.53) / — — / 559 (22) / — — / 44.5 (98) / —	993 (39.09) 430 (16.93) — / 1,178 (46.38) / 1,254 (49.37) — / 559 (22.01) / 635 (25) — / 45 (99) / 45.5 (100)	575 (22.64) 325 (12.8) — / 1,178 (46.38) / 1,254 (49.37) — / 559 (22.01) / 635 (25) — / 45 (99) / 46 (101)
4,500–5,500 7.3 (9.9) @ 5,000 900–1,000	4,000–5,000 7.3 (9.9) @ 4,500 1,100–1,200	4,000–5,000 7.3 (9.9) @ 4,500 900–1,000
4-stroke, L2 232 (14.16) 59 × 42.4 (2.32 × 1.67) CDI system CR6HS 0.6–0.7 (0.02–0.03) Remote control Electric start 0.15–0.20 (0.0059–0.0079) 0.20–0.25 (0.0079–0.0098) 245 323 52 12- 6 Prime start	4-stroke, L2 232 (14.16) 59 × 42.4 (2.32 × 1.67) CDI system CR6HS 0.6–0.7 (0.02–0.03) Tiller control Manual start 0.15–0.20 (0.0059–0.0079) 0.20–0.25 (0.0079–0.0098) 245 323 52 12- 10 Prime start	4-stroke, L2 232 (14.16) 59 × 42.4 (2.32 × 1.67) CDI system CR6HS 0.6–0.7 (0.02–0.03) Remote control Manual start 0.15–0.20 (0.0059–0.0079) 0.20–0.25 (0.0079–0.0098) 245 323 52 12- 10 Prime start
Forward-Neutral-Reverse 2.08 (27/13) Manual tilt J	Forward-Neutral-Reverse 2.92 (38/13) Manual tilt J	Forward-Neutral-Reverse 2.92 (38/13) Manual tilt J
Regular unleaded gasoline 25 (6.60, 5.50) 4-stroke motor oil SE, SF, SG, SH, SJ 10W-30, 10W-40 1.0 (1.06, 0.88) Hypoid gear oil (SAE90) 185 (6.25, 6.52)	Regular unleaded gasoline 25 (6.60, 5.50) 4-stroke motor oil SE, SF, SG, SH, SJ 10W-30, 10W-40 1.0 (1.06, 0.88) Hypoid gear oil (SAE90) 185 (6.25, 6.52)	Regular unleaded gasoline 25 (6.60, 5.50) 4-stroke motor oil SE, SF, SG, SH, SJ 10W-30, 10W-40 1.0 (1.06, 0.88) Hypoid gear oil (SAE90) 185 (6.25, 6.52)
13 (1.3, 9.4) 17 (1.7, 12) 8 (0.8, 5.8) 8 (0.8, 5.8)	13 (1.3, 9.4) 17 (1.7, 12) 8 (0.8, 5.8) 8 (0.8, 5.8)	13 (1.3, 9.4) 17 (1.7, 12) 8 (0.8, 5.8) 8 (0.8, 5.8)

EMU01369

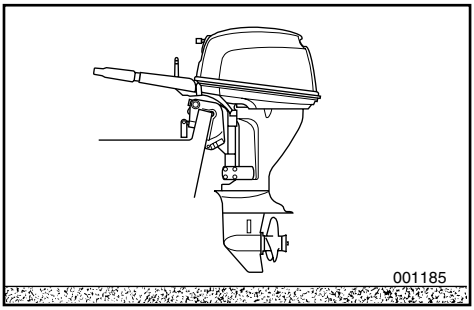
TRANSPORTING AND STORING OUTBOARD MOTOR

⚠WARNING

Leaking fuel is a fire hazard. When transporting and storing the outboard motor, close the air vent screw and fuel cock to prevent fuel from leaking.

EMU00326

TRAILERING OUTBOARD MOTOR



The motor should be trailered and stored in the normal running position. If there is insufficient road clearance in this position, then trailer the motor in the tilt position using a motor support device such as a transom saver bar.

For further details, consult your Yamaha dealer.

⚠WARNING

- **Never get under the lower unit while it is tilted, even if a motor support bar is used. Severe injury could occur if the outboard accidentally falls.**
- **USE CARE when transporting fuel tank, whether in a boat or car.**
- **DO NOT fill fuel container to maximum capacity. Gasoline will expand considerably as it warms up and can build up pressure in the fuel container. This can cause fuel leakage and a potential fire hazard.**

CAUTION:

Do not use the tilt support lever/knob when trailering the boat. The outboard motor could shake loose from the tilt support and fall. If the motor can not be trailered in the down position, use an additional support device to secure it in the up position.

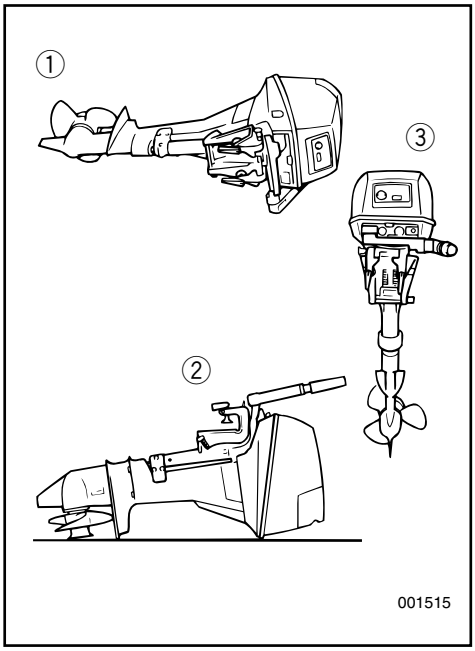
EMU00330

STORING OUTBOARD MOTOR

When storing your Yamaha outboard for prolonged periods of time, (2 months or longer), several important procedures must be performed to prevent expensive damage. It is advisable to have your outboard serviced by an authorized Yamaha dealer prior to storage. However, the following procedures can be performed by you, the owner, with a minimum of tools.

CAUTION:

- **To prevent problems which can be caused by oil entering the cylinder from the sump, keep the engine in the attitude shown when transporting and storing it.**
- **Do not place the engine on its side before the cooling water has drained from it completely, or water may enter the cylinder through the exhaust port and cause problems.**
- **Store the engine in a dry, well-ventilated place, not in direct sunlight.**



① Vertical position
② Horizontal position
③ Upright

EMU00335

Filling Fuel Tank

Fill the fuel tank with fresh fuel and add one ounce of “Yamaha Fuel Conditioner and Stabilizer” (Part No. LUB-FUELC-12-00) to each gallon of fuel.

NOTE:

The use of “Yamaha Fuel Conditioner and Stabilizer” eliminates the need to drain the fuel system. Consult your Yamaha dealer or other qualified mechanic if the fuel system is to be drained instead.

EMU00338

Flushing Cooling System and Fogging Engine

Cooling system flushing is essential to prevent the cooling system from clogging up with salt, sand, or dirt. In addition, fogging of the engine is mandatory to prevent expensive engine damage due to rust. Perform the flushing and fogging at the same time.

⚠WARNING

- **Do not touch or remove electrical parts when starting or during operation.**
- **Keep hands, hair and clothes away from flywheel and other rotating parts while engine is running.**

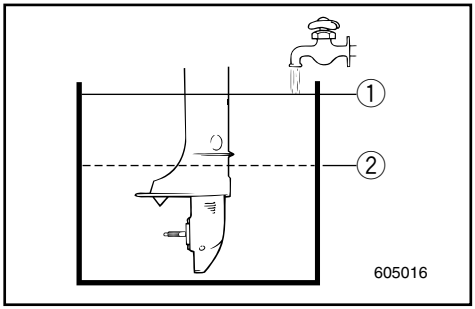
EMU00340

- **Flushing in a Water Tank**

CAUTION:

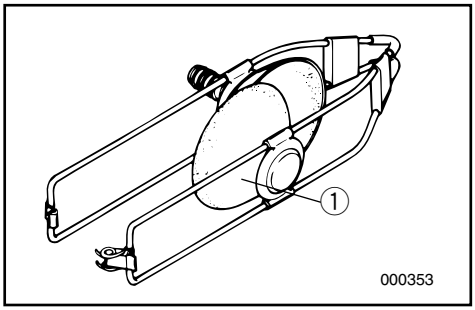
If the fresh water level is below the level of the anti-cavitation plate, or if the water supply is insufficient, engine seizure may occur.

1) Remove the engine top cowling.
2) Install the outboard motor on the water tank.
3) Fill the tank with fresh water to above the level of the anti-cavitation plate.
4) Run the engine at a fast idle for 10~15 minutes.
5) Just prior to turning off the engine, quickly spray “Yamaha Stor-Rite Engine Fogging Oil” (Part No. LUB-STRRT-12-00) into the silencer cover. When properly done, the engine will smoke excessively and almost stall.



6) Remove the motor from the water tank.
7) Install the top cowling.

① Water surface
② Lowest water level



EMU00342

- **Flushing with the Flushing Attachment**

CAUTION:

Avoid running the outboard at high speed while on the flushing attachment, or overheating could occur.

1) Remove the top cowling and the propeller.
2) Install a flushing attachment ① to the cooling water inlet.
3) Run the engine at a fast idle for 10~15 minutes supplying fresh water.
4) Just prior to turning off the engine, quickly spray "Yamaha Stor-Rite Engine Fogging Oil" (Part No. LUB-STRRT-12-00) alternately into the silencer cover. When properly done, the engine will smoke excessively and almost stall.
5) Remove the flushing attachment and wipe off any excess water.
6) Install the top cowling and the propeller.

NOTE:

A flushing attachment is available from a Yamaha dealer.

EMU00349

Lubrication

1) Remove the spark plug(s). Spray a Yamaha “Stor-Rite Engine Fogging Oil” into each cylinder for 10 seconds. Grease the spark plug threads and reinstall the spark plug(s) and torque to proper specification. (Refer to the “CLEANING AND ADJUSTING SPARK PLUG”).
2) Turn the engine over with the stop lanyard disconnected to work the fogging oil into the piston rings.
3) Change the gear-case oil. (Refer to “CHANGING GEAR OIL”). Inspect the oil for the presence of water which indicates a leaky seal. Seal replacement should be performed by an authorized Yamaha dealership prior to use.
4) Grease all grease fittings. (Refer to the “GREASING”)

EMU00351

Cleaning and Anti-corrosion Measure

1) Wash down the exterior of the outboard with fresh water and dry off completely.
2) Spray the engine’s exterior with “Yamaha Silicone Protectant” (Part No. LUB-SILCNE-13-00).
3) Wax the cowling with a non-abrasive wax such as “Yamaha Silicone Wax” (Part No. ACC-11000-15-02).

EMU01545

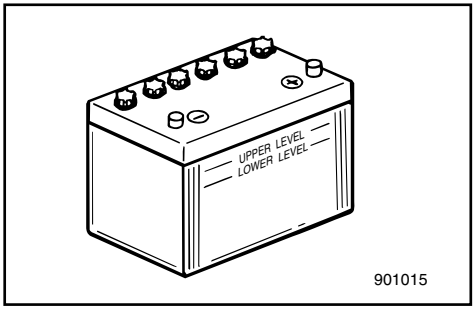
Battery Care

⚠WARNING

Battery electrolyte is poisonous and dangerous, causing severe burns, etc. It contains sulfuric acid. Avoid contact with skin, eyes, or clothing.
Antidote:
EXTERNAL: Flush with water.
INTERNAL: Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call physician immediately.
EYES: Flush with water for 15 minutes and get prompt medical attention.
Batteries produce explosive gases: Keep sparks, flame, cigarettes, etc. away. Ventilate when charging or using in a closed space. Always wear eye protection when working near batteries.
KEEP OUT OF REACH OF CHILDREN.

Batteries vary among manufacturers. Therefore the following procedures may not always apply. Consult your battery manufacturer's instructions.

1) Disconnect and remove the battery from the boat. Always disconnect the black negative lead first to prevent the risk of shorting.
2) Clean the battery casing and terminals. Fill each cell to the upper level with distilled water.
3) Store the battery on a level surface in a cool, dry, well-ventilated place out of direct sunlight.
4) Once a month, check the specific gravity of the electrolyte and recharge as required to prolong battery life.



EMU01569

PERIODIC MAINTENANCE

⚠WARNING

Be sure to turn off the engine when you perform maintenance unless otherwise specified. If the owner is not familiar with machine servicing, this work should be done by a Yamaha dealer or other qualified mechanic.

Maintenance, replacement, or repair of the emission control devices and systems may be performed by any marine engine repair establishment or individual. All warranty repairs, however, including those to the emission control system, must be performed by an authorized Yamaha marine dealership.

A service manual is available for purchase through a Yamaha dealer for owners who have the mechanical skills, tools, and other equipment necessary to perform maintenance not covered by this owner's manual.

EMU00356

REPLACEMENT PARTS

If replacement parts are necessary, use only genuine Yamaha parts or equivalents of the same type and of equivalent strength and materials. Any part of inferior quality may malfunction, and the resulting loss of control could endanger the operator and passengers.

Yamaha genuine parts and accessories are available from a Yamaha dealer.

EMU00357*

MAINTENANCE CHART

Frequency of maintenance operations may be adjusted according to the operating conditions, but the following table gives general guidelines.
The mark (●) indicates the check-ups which you may carry out yourself.
The mark (○) indicates work to be carried out by your Yamaha dealer.

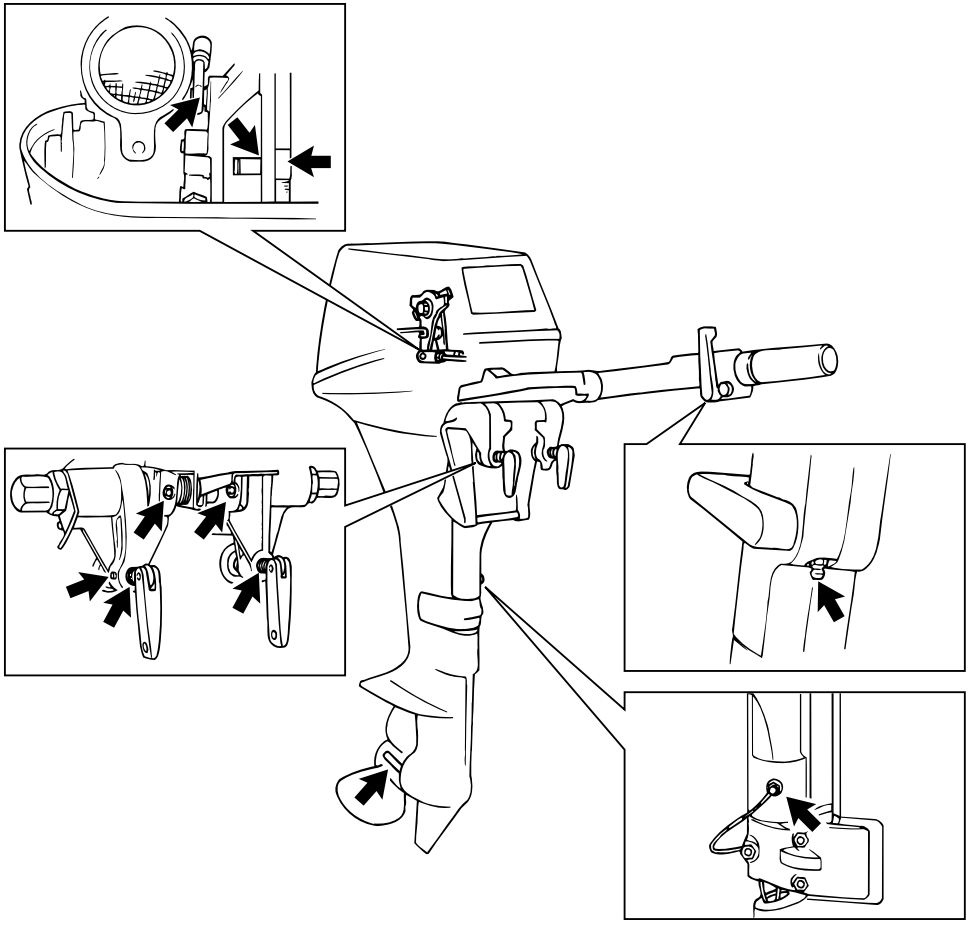
Item \ Interval		Initial		Every		Refer page
		10 hours (1 month)	50 hours (3 months)	100 hours (6 months)	200 hours (1 year)	
Spark plug(s)	Cleaning/Adjustment/ Replacement	●	●	●		4-12
Greasing points	Greasing			●		4-11
Gear oil	Change	●		●		4-23
Fuel system	Inspection			●		4-14
Fuel filter	Inspection/Replacement	●	●	●		4-15
Fuel tank *1	Cleaning				●	4-25
Idling speed	Inspection/Adjustment			●		4-16
Anode(s)	Inspection/Replacement		○	○		4-26
Outboard motor exterior	Inspection		●	●		4-30
Cooling water passages *2	Flushing		●	●		4-5
Propeller/cotter pin	Inspection		●	●		4-21
Timing belt	Inspection/Replacement			○		4-19
Battery *3	Inspection/Charge	● (every month)				4-27
Carburetor setting	Inspection/Adjustment	○		○		—
Ignition timing	Inspection/Adjustment	○		○		—
Bolts and nuts	Retightening	○		○		4-29
Engine oil	Change	●		●		4-17
Valve clearance	Inspection/Adjustment	○		○		—

*1. If a portable fuel tank is equipped.
*2. When operating in salt water, turbid or muddy water, the engine should be flushed with clean water after each use.
*3. For electric start model.

EMU00366

GREASING

Yamaha marine grease
(Water resistant grease)



001563

EMU01202

CLEANING AND ADJUSTING SPARK PLUG

⚠WARNING

When removing or installing a spark plug, be careful not to damage the insulator. A damaged insulator could allow external sparks, which could lead to explosion or fire.

The spark plug is an important engine component and is easy to inspect. The condition of the spark plug can indicate something about the condition of the engine. For example, if the center electrode porcelain is very white, this could indicate an intake air leak or carburetion problem in that cylinder. Do not attempt to diagnose any problems yourself. Instead, take the outboard motor to a Yamaha dealer. You should periodically remove and inspect the spark plug because heat and deposits will cause the spark plug to slowly break down and erode. If electrode erosion becomes excessive, or if carbon and other deposits are excessive, you should replace the spark plug with another of the correct type.

Standard spark plug:
Refer to “SPECIFICATIONS”, page 4-1.

Before fitting the spark plug, measure the electrode gap with a wire thickness gauge; adjust the gap to specification if necessary.

Spark plug gap:
Refer to “SPECIFICATIONS”, page 4-1.

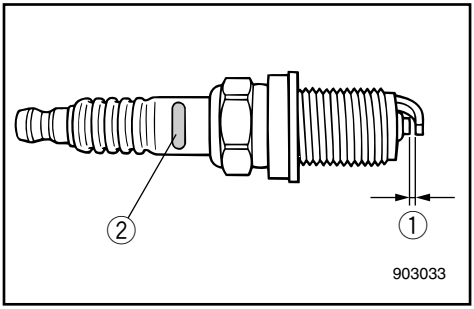
When fitting the plug, always clean the gasket surface and use a new gasket. Wipe off any dirt from the threads and screw in the spark plug to the correct torque.

Spark plug torque:
Refer to “SPECIFICATIONS”, page 4-1.

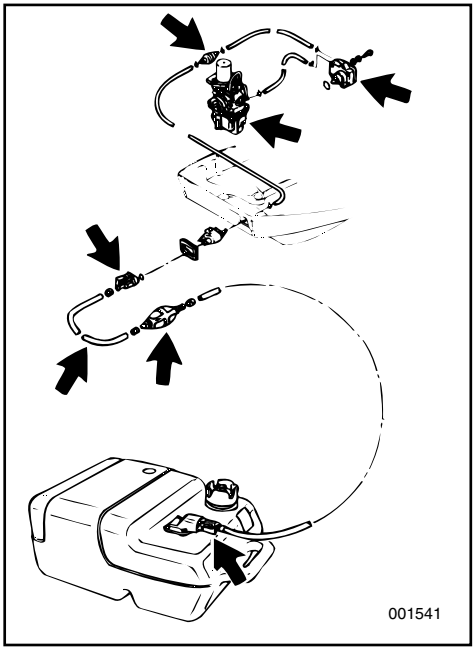
NOTE:

If a torque-wrench is not available when you are fitting a spark plug, a good estimate of the correct torque is 1/4 to 1/2 a turn past finger-tight. Have the spark plug adjusted to the correct torque as soon as possible with a torque-wrench.

Initial of spark plug I.D. mark	Plug wrench size
B	21 mm (13/16 in.)
C/BK	16 mm (5/8 in.)
D	18.3 mm (23/32 in.)



① Spark plug gap
② Spark plug I.D. mark (NGK)



EMU01509

CHECKING FUEL SYSTEM

⚠WARNING

Gasoline (petrol) and its vapors are highly flammable and explosive. Keep away from sparks, cigarettes, flames or other sources of ignition.

Check the fuel line for leaks, cracks, or malfunctions. If any problem is found, it should be repaired immediately by Yamaha dealer or other qualified mechanic.

Checkpoints

- Fuel system parts leakage.
- Fuel hose joint leakage.
- Fuel hose cracks or other damage.
- Fuel connector leakage.

⚠WARNING

Leaking fuel can result in fire or explosion.

- **Check for fuel leakage regularly.**
- **If any fuel leakage is found, the fuel system must be repaired by a qualified mechanic. Improper repairs can make the outboard unsafe to operate.**

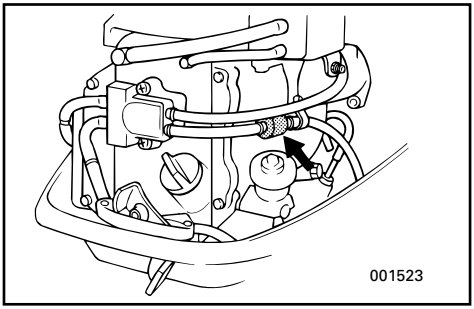
EMU00370

INSPECTING FUEL FILTER

⚠WARNING

Gasoline (petrol) is highly flammable, and its vapors are flammable and explosive.

- **If you have any question about properly doing this procedure, consult your Yamaha dealer.**
- **Do not perform this procedure on a hot or running engine. Allow the engine to cool.**
- **There will be fuel in the fuel filter. Keep away from sparks, cigarettes, flames or other sources of ignition.**
- **This procedure will allow some fuel to spill. Catch fuel in a rag. Wipe up any spilled fuel immediately.**
- **The fuel filter must be reassembled carefully with O-ring, filter cup, and hoses in place. Improper assembly or replacement can result in a fuel leak, which could result in a fire or explosion hazard.**



EMU00374

Check the fuel filter periodically.

The fuel filter is a one-piece, disposable type. If foreign matter is found in the filter, replace it. For replacement of the fuel filter, consult a Yamaha dealer.

EMU00991

ADJUSTING IDLING SPEED

⚠WARNING

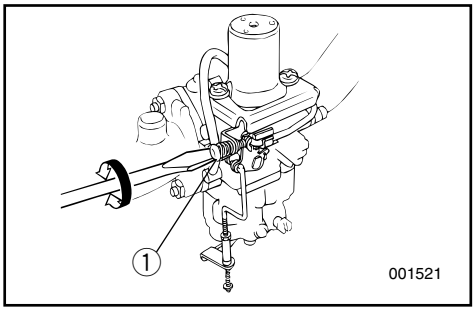
- **Do not touch or remove electrical parts when starting or during operation.**
- **Keep hands, hair and clothes away from flywheel and other rotating parts while engine is running.**

CAUTION:

This procedure must be performed while the outboard motor is in the water. A flushing attachment or test tank can be used.

A diagnostic tachometer should be used for this procedure.

1) Start the engine and allow it to warm up fully in Neutral until it is running smoothly. If the outboard is mounted on a boat, be sure the boat is tightly moored.
2) Adjust the throttle stop-screw ① to set the idling speed to specification (see "SPECIFICATIONS" on page 4-1) by turning the stop-screw clockwise to increase the idling speed, and turning it counterclockwise to decrease the idling speed.



NOTE:

Correct idling-speed adjustment is only possible if the engine is fully warmed-up. If not warmed up fully, the speed setting will tend to be too high. If you have difficulty obtaining the specified idle, consult a Yamaha dealer or other qualified mechanic.

EMU01415*

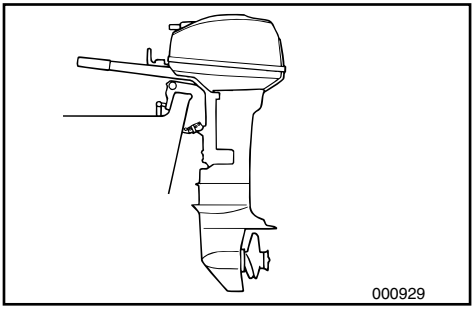
CHANGING ENGINE OIL

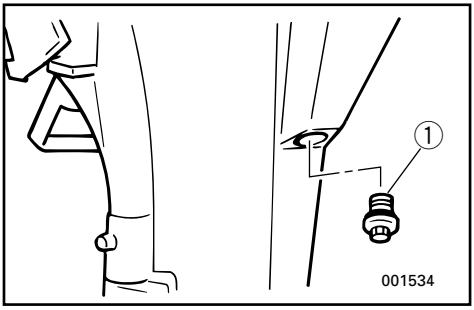
⚠WARNING

- **Avoid draining the engine oil immediately after stopping the engine. The oil is hot and should be handled with care to avoid burns.**
- **Be sure the outboard motor is securely fastened to the transom or a stable stand.**

CAUTION:

- **Change the engine oil after the first 10 hours of operation, and every 100 hours or at 6-month intervals thereafter. Otherwise the engine will wear quickly.**
- **Do not overfill the oil, and be sure the outboard motor is upright (not tilted) when checking and changing the engine oil.**
- **If the oil level is above the upper level mark, drain until the level meets the specified capacity. Overfilling the oil could cause leakage or damage.**





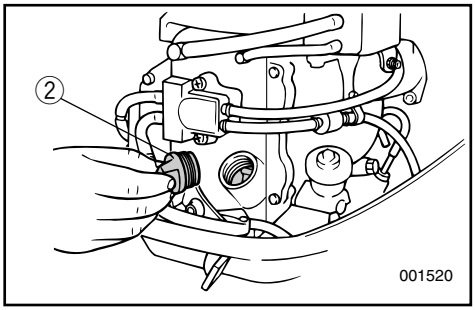
1) Put the outboard motor in an upright position (not tilted).
2) Prepare a suitable container that holds a larger amount than the engine oil capacity. Loosen and remove the drain screw ① while holding the container under the drain hole. Let the oil drain completely. Wipe up any spilled oil immediately.
3) Put a new gasket on the oil drain screw. Apply a light coat of oil to the gasket and install the drain screw.

Drain screw tightening torque:
See “Specifications” in this chapter.

NOTE:

If a torque wrench is not available when you are installing the drain screw, finger tighten the screw just until the gasket comes into contact with the surface of the drain hole. Then tighten 1/4 to 1/2 turn more. Tighten the drain screw to the correct torque with a torque wrench as soon as possible.

4) Remove the oil filler cap ②. Add the correct amount of oil through the filler hole.
   Install the filler cap.



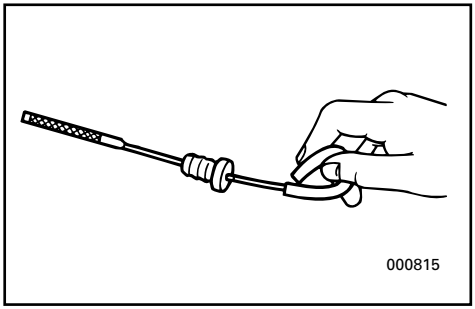
Engine oil grade and capacity:
See “Specifications” in this chapter.

5) Start the engine and watch to make sure the oil pressure indicator turns on. Make sure that there are no oil leaks.

CAUTION:

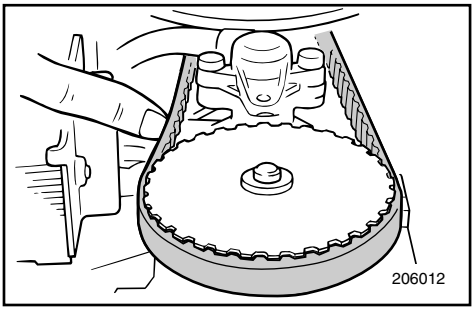
If the oil pressure indicator does not turn on, or if there are oil leaks, stop the engine and find the cause. Continued operation with a problem could cause severe engine damage. Consult your Yamaha dealer if the problem cannot be located and corrected.

6) Turn off the engine and wait 3 minutes. Recheck the oil level using the dipstick to be sure the level falls between the upper and lower marks. Fill with oil if it is below the lower mark, or drain to the specified level if it is above the upper mark.
7) Dispose of used oil according to local regulations.



NOTE:

- For more information on the disposal of used oil, consult your Yamaha dealer.
- Change the oil more often when operating the engine under adverse conditions such as extended trolling.



EMU00380

CHECKING TIMING BELT

Inspect the timing-belt and replace it if any of the following signs is observed:

- Cracks in the back of the belt or in the base of belt teeth.
- Excessive wear at the roots of cogs.
- Rubber portion swollen by oil.
- Belt surfaces roughened.
- Signs of wear on edges or outer surface of belt.
- Stretching by 10 mm (0.39 in) or more when the belt is pushed with a finger.

CAUTION:

Consult your Yamaha dealer for replacement of the timing-belt.

EMU01329

REPLACING FUSE

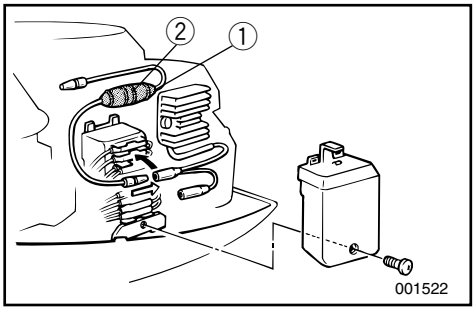
If the fuse has blown on an Electric start model, open the fuse holder and replace the fuse with a new one of proper amperage.

⚠WARNING

Be sure to use the specified fuse. An incorrect fuse or a piece of wire may allow excessive current flow. This could cause electrical system damage and a fire hazard.

NOTE:

If the new fuse blows again immediately, consult a Yamaha dealer.



① Fuse holder
② Fuse (20A)

EMU00383

CHECKING WIRING AND CONNECTORS

1) Check that each grounding wire is properly secured.
2) Check that each connector is engaged securely.

EMU00384

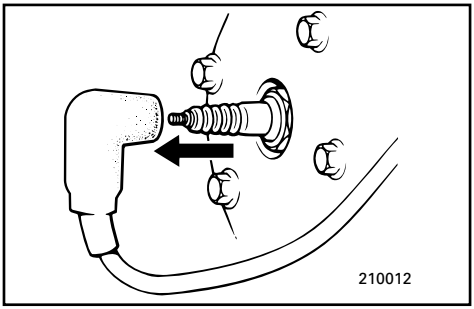
EXHAUST LEAKAGE

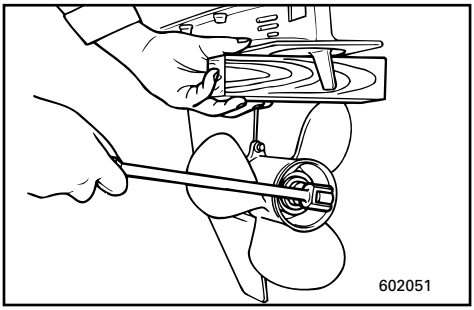
Start the engine and check that no exhaust leaks from the joints between the exhaust cover, cylinder head and crank case.

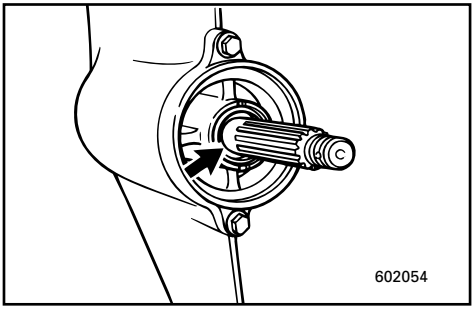
EMU00385

WATER LEAKAGE

Start the engine and check that no water leaks from the joints between the exhaust cover, cylinder head and crank case.







EMU00388

CHECKING PROPELLER

⚠WARNING

You could be seriously injured if the engine accidentally starts while you are near the propeller.

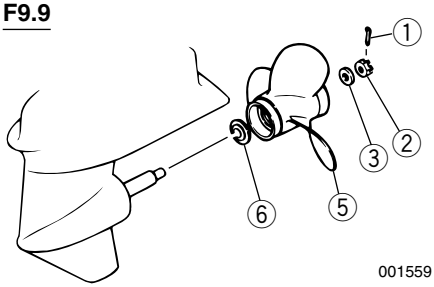
- **Before inspecting, removing or installing the propeller, remove the spark plug caps from the spark plugs. Also, put the shift control in Neutral, put the main switch in the "OFF" position and remove the key, and remove the lanyard from the engine stop switch. Turn off the battery cut-off switch if your boat has one.**
- **Do not use your hand to hold the propeller when loosening or tightening the propeller nut. Put a wood block between the cavitation plate and the propeller to prevent the propeller from turning.**

EMU00390

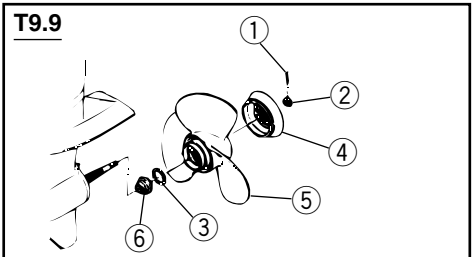
Propeller Checking Point

- Check each of the propeller blades for wear, erosion from cavitation or ventilation, or other damage.
- Check the splines for wear and damage.
- Check for fish line winding around the propeller shaft.
- Check the propeller shaft oil seal for damage.

F9.9



T9.9



EMU00997*

Removing the Propeller

1) Straighten the cotter-pin ① and pull it out using a pair of pliers.
2) Remove the propeller nut ② and washer ③.
3) Remove the deflector ④ (for T9.9), propeller ⑤ and thrust washer ⑥.

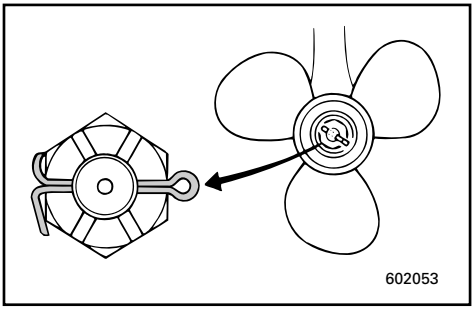
EMU00998*

Installing the Propeller

CAUTION:

- **Be sure to install the thrust washer before installing propeller, otherwise, lower case and propeller boss may be damaged.**
- **Be sure to use a new cotter pin and bend the ends over securely. Otherwise, the propeller could come off during operation and be lost.**

1) Apply Yamaha Marine grease or a corrosion resistant grease to the propeller-shaft.
2) Install the thrust washer and propeller on the propeller shaft. Install the deflector (for T9.9) on the propeller.
3) Install the washer and tighten the propeller nut to the specified torque.



Tightening torque:
Refer to “SPECIFICATIONS” on page 4-1.

4) Align the propeller nut with the propeller shaft hole. Insert a new cotter pin in the hole and bend the cotter pin ends.

NOTE:

When the propeller nut does not align with the propeller shaft hole after tightening to the specified torque, then tighten the nut further to align it with the hole.

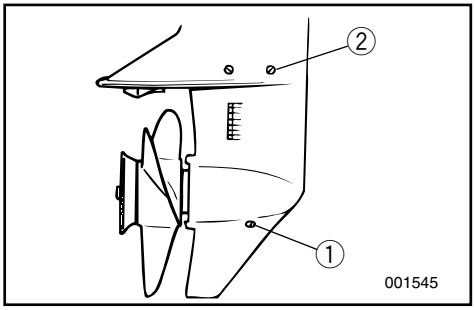
EMU01773

CHANGING GEAR OIL

⚠WARNING

- **Be sure the outboard motor is securely fastened to the transom or a stable stand. You could be severely injured if the outboard motor falls on you.**
- **Never get under the lower unit while it is tilted, even when the tilt support lever or knob is locked. Severe injury could occur if the outboard motor accidentally falls.**

1) Tilt the outboard motor so that the gear oil drain screw is at the lowest point possible.
2) Place a suitable container under the gear case.



3) Remove the gear oil drain screw ①.
4) Remove the oil level plug ② to allow the oil to drain completely.

CAUTION:

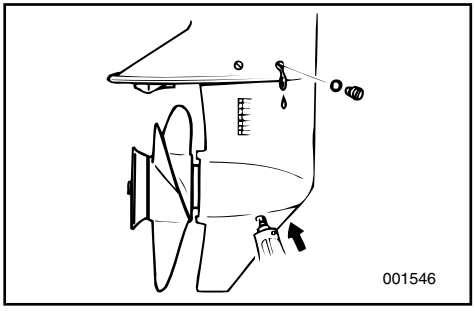
Inspect the used oil after it has been drained. If the oil is milky, water is getting into the gear case which can cause gear damage. Consult a Yamaha dealer for repair of the lower unit seals.

NOTE:

For disposal of used oil consult your Yamaha dealer.

5) With the outboard motor in a vertical position, and using a flexible or pressurized filling device, inject the gear oil into the gear oil drain screw hole.

Gear oil grade and capacity:
See "Specifications" in this chapter.



6) When the oil begins to flow out of the oil level plug hole, insert and tighten the oil level plug.
7) Insert and tighten the gear oil drain screw.

EMU01510

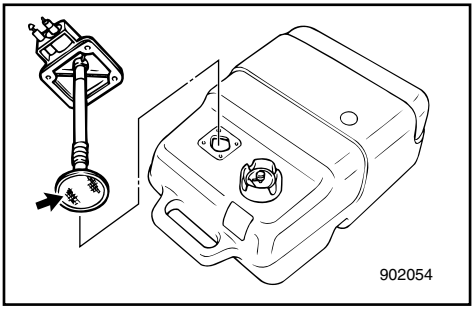
CLEANING FUEL TANK

⚠WARNING

Gasoline (petrol) is highly flammable, and its vapors are flammable and explosive.

- **If you have any question about properly doing this procedure, consult your Yamaha dealer.**
- **Keep away from sparks, cigarettes, flames or other sources of ignition when cleaning the fuel tank.**
- **Remove the fuel tank from the boat before cleaning it. Work only outdoors in an area with good ventilation.**
- **Wipe up any spilled fuel immediately.**
- **Reassemble the fuel tank carefully. Improper assembly can result in a fuel leak, which could result in a fire or explosion hazard.**
- **Dispose of old gasoline (petrol) according to local regulations.**

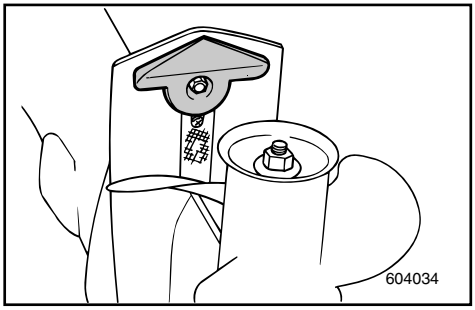
1) Empty the fuel tank into an approved container.
2) Pour a small amount of suitable solvent in the tank. Reinstall the cap and shake the tank. Drain the solvent completely.



EMU00402

Cleaning the Fuel Filter

1) Remove the screws holding the fuel hose joint assembly. Pull the assembly out of the tank.
2) Clean the filter (located on the end of the suction pipe) in a suitable cleaning solvent. Allow the filter to dry.
3) Replace the gasket with a new one. Reinstall the fuel hose joint assembly and tighten the screws firmly.



EMU01462

INSPECTING AND REPLACING ANODE(S)

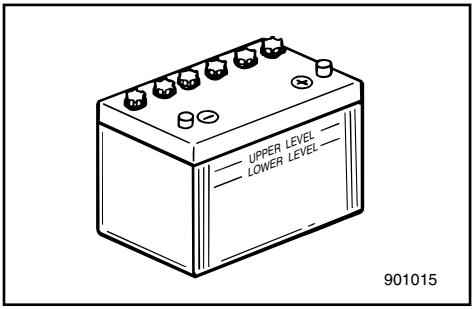
Yamaha outboard motors are protected from corrosion by sacrificial anodes.

Check the anodes periodically. Remove scales from the surfaces of the anodes.

For inspection and replacement of anodes, consult a Yamaha dealer.

CAUTION:

Do not paint anodes, as this would render them ineffective.



EMU00404

CHECKING BATTERY (for Electric start models)

⚠WARNING

Battery electrolytic fluid is dangerous; it contains sulfuric acid and therefore is poisonous and highly caustic.

Always follow these preventive measures:

- **Avoid bodily contact with electrolytic fluid as it can cause severe burns or permanent eye injury.**
- **Wear protective eye gear when handling or working near batteries.**

Antidote (EXTERNAL):

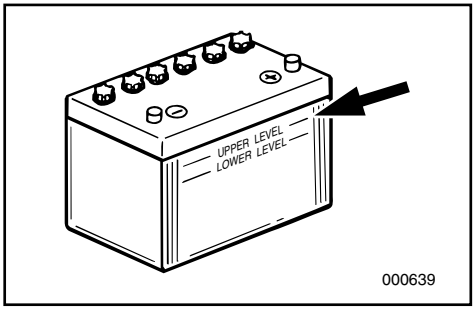
- **SKIN - Flush with water.**
- **EYES - Flush with water for 15 minutes and get immediate medical attention.**

Antidote (INTERNAL):

- **Drink large quantities of water or milk followed by milk of magnesia, beaten egg, or vegetable oil. Get immediate medical attention.**

Batteries also generate explosive hydrogen gas; therefore, you should always follow these preventive measures:

- **Charge batteries in a well-ventilated area.**
- **Keep batteries away from fire, sparks, or open flames (e.g., welding equipment, lighted cigarettes, etc.).**
- **DO NOT SMOKE when charging or handling batteries.**
- **KEEP BATTERIES AND ELECTROLYTIC FLUID OUT OF REACH OF CHILDREN.**



CAUTION:

- **A poorly maintained battery will quickly deteriorate.**
- **Ordinary tap-water contains minerals harmful to a battery, and should not be used for topping-up.**

1) Check the electrolyte level at least once a month. Fill to the manufacturer's recommended level when necessary. Top up only with distilled water (or pure deionized water suitable to use in batteries).
2) Keep the battery always in a good state of charge. Installing a voltmeter will help you monitor your battery. If you will not use the boat for a month or more, remove the battery from the boat and store it in a cool, dark place. Completely recharge the battery before using it.
3) If the battery will be stored for longer than a month, check the specific gravity of the fluid at least once a month and recharge the battery when it is low.

EMU01279

Connecting the Battery

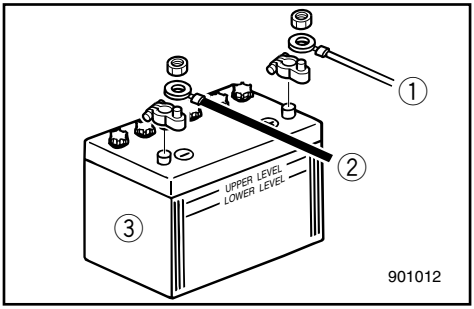
⚠WARNING

Mount the battery holder securely in a dry, well-ventilated, vibration-free location in the boat. Install a fully charged battery in the holder.

CAUTION:

- **Make sure the main switch (on applicable models) is "OFF" before working on the battery.**
- **Reversal of the battery leads will damage the rectifier.**
- **Connect the RED lead first when installing the battery and disconnect the RED lead last when removing it. Otherwise, the electrical system can be damaged.**
- **The electrical contacts of the battery and cables must be clean and properly connected, or the battery will not start the engine.**

Connect the RED lead to the POSITIVE (+) terminal first.
Then connect the BLACK lead to the NEGATIVE (-) terminal.



① Red lead
② Black lead
③ Battery

EMU01280

Disconnecting the Battery

Disconnect the BLACK lead from the NEGATIVE (-) terminal first. Then disconnect the RED lead from the POSITIVE (+) terminal.

EMU00408

CHECKING BOLTS AND NUTS

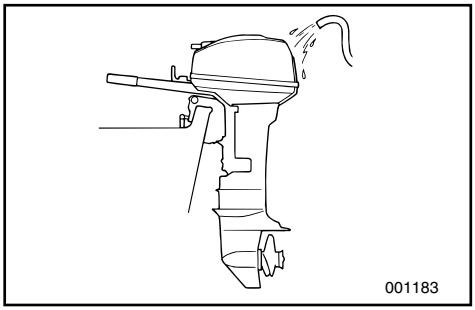
1) Check that bolts securing the cylinder head and engine and the nut securing the flywheel are tightened with their specified tightening torque.
2) Check the tightening torque of other bolts and nuts.

EMU01635

CHECKING TOP COWLING

Check the fitting of the top cowling by pushing it with both hands.

If the fitting is loose have it repaired by a Yamaha dealer.



EMU00409

MOTOR EXTERIOR

EMU00410

Cleaning the Outboard Motor

After use, wash the exterior of the outboard with fresh water.

Flush the cooling system with fresh water.

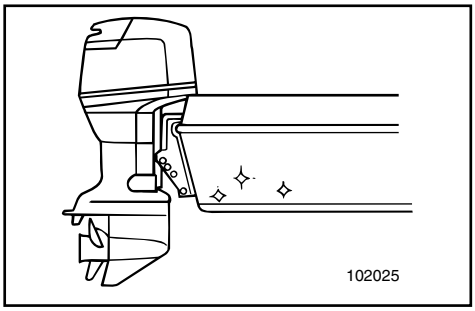
NOTE:

Refer to Flushing Cooling System instructions in “TRANSPORTING AND STORING OUTBOARD MOTOR”.

EMU00412

Checking Painted Surface of Motor

Check the motor for scratches, nicks, or flaking paint. Areas with damaged paint are more likely to corrode. If necessary, clean and paint the areas. A touch-up paint is available from a Yamaha dealer.



EMU00413

COATING THE BOAT BOTTOM

A clean hull improves boat performance. The boat bottom should be kept as clean of marine growths as possible. If necessary, the boat bottom can be coated with an anti-fouling paint approved for your area to inhibit marine growth.

Do not use anti-fouling paint which includes copper or graphite. These paints can cause more rapid engine corrosion.

-MEMO-

E

EMU00414

Chapter 5
TROUBLE RECOVERY

TROUBLESHOOTING 5-1

TEMPORARY ACTION IN EMERGENCY 5-4
Impact damage 5-4
Starter will not operate 5-5
Engine fails to operate 5-7
Treatment of submerged motor 5-8

5

EMU01752

TROUBLESHOOTING

A problem in the fuel, compression, or ignition systems can cause poor starting, loss of power, or other problems. The troubleshooting chart describes basic checks and possible remedies. (This chart covers all Yamaha outboard motors. Therefore, some items may not apply to your model.)
If your outboard motor requires repair, bring it to a Yamaha dealer.
If the engine warning indicator is flashing, consult your Yamaha dealer.

Trouble	Possible Cause	Remedy
A. Starter will not operate.	1. Battery capacity weak or low. 2. Battery connections loose or corroded. 3. Fuse for electric start circuit blown. 4. Starter components faulty. 5. Shift lever in gear.	1. Check battery condition. Use battery of recommended capacity. 2. Tighten battery cables and clean battery terminals. 3. Check for cause of electric overload and repair. Replace fuse with one of correct amperage. 4. Have serviced by a Yamaha dealer. 5. Shift to neutral.
B. Engine will not start (Starter operates).	1. Fuel tank empty. 2. Fuel contaminated or stale. 3. Fuel filter clogged. 4. Starting procedure incorrect. 5. Fuel pump malfunctions. 6. Spark plug(s) fouled or incorrect type. 7. Spark plug cap(s) fitted incorrectly. 8. Poor connections or damaged ignition wiring. 9. Ignition parts faulty. 10. Engine stop switch lanyard not attached. 11. Engine inner parts damaged.	1. Fill tank with clean, fresh fuel. 2. Fill tank with clean, fresh fuel. 3. Clean or replace filter. 4. Read “STARTING ENGINE” section. 5. Have serviced by a Yamaha dealer. 6. Inspect spark plug(s). Clean or replace with recommended type. 7. Check and re-fit cap(s). 8. Check wires for wear or breaks. Tighten all loose connections. Replace worn or broken wires. 9. Have serviced by a Yamaha dealer. 10. Attach lanyard. 11. Have serviced by a Yamaha dealer.
C. Engine idles irregularly or stalls.	1. Spark plug(s) fouled or incorrect type. 2. Fuel system obstructed. 3. Fuel contaminated or stale. 4. Fuel filter clogged. 5. Failed ignition parts. 6. Warning system activated. 7. Spark plug gap incorrect.	1. Inspect spark plug(s). Clean or replace with recommended type. 2. Check for pinched or kinked fuel line or other obstructions in fuel system. 3. Fill tank with clean, fresh fuel. 4. Clean or replace filter. 5. Have serviced by a Yamaha dealer. 6. Find and correct cause of warning. 7. Inspect and adjust as specified.

Trouble	Possible Cause	Remedy
C. Engine idles irregularly or stalls.	8. Poor connections or damaged ignition wiring. 9. Specified engine oil not used. 10. Thermostat faulty or clogged. 11. Carburetor adjustments incorrect. 12. Fuel pump damaged. 13. Air vent screw on the fuel tank closed. 14. Motor angle too high. 15. Carburetor clogged. 16. Fuel joint connection incorrect. 17. Throttle valve adjustment incorrect. 18. Battery lead disconnected.	8. Check wires for wear or breaks. Tighten all loose connections. Replace worn or broken wires. 9. Check and replace oil as specified. 10. Have serviced by a Yamaha dealer. 11. Have serviced by a Yamaha dealer. 12. Have serviced by a Yamaha dealer. 13. Open the air vent screw. 14. Return to normal operating position. 15. Have serviced by a Yamaha dealer. 16. Connect correctly. 17. Have serviced by a Yamaha dealer. 18. Connect securely.
D. Engine power loss.	1. Propeller damaged. 2. Propeller pitch or diameter incorrect. 3. Trim angle incorrect. 4. Motor mounted at incorrect height on transom. 5. Warning system activated. 6. Boat bottom fouled with marine growth. 7. Spark plug(s) fouled or incorrect type. 8. Weeds or other foreign matter tangled on gear housing. 9. Fuel system obstructed. 10. Fuel filter clogged. 11. Fuel contaminated or stale. 12. Spark plug gap incorrect. 13. Poor connections or damaged ignition wiring. 14. Failed ignition parts. 15. Specified engine oil not used. 16. Thermostat faulty or clogged. 17. Air vent screw closed. 18. Fuel pump damaged. 19. Fuel joint connection incorrect. 20. Heat range of spark plug incorrect.	1. Have propeller repaired or replaced. 2. Install correct propeller to operate outboard at its recommended speed (r/min) range. 3. Adjust trim angle to achieve most efficient operation. 4. Have motor adjusted to proper transom height. 5. Find and correct cause of warning. 6. Clean boat bottom. 7. Inspect spark plug(s). Clean or replace with recommended type. 8. Remove foreign matter and clean lower unit. 9. Check for pinched or kinked fuel line or other obstructions in fuel system. 10. Clean or replace filter. 11. Fill tank with clean, fresh fuel. 12. Inspect and adjust as specified. 13. Check wires for wear or breaks. Tighten all loose connections. Replace worn or broken wires. 14. Have serviced by a Yamaha dealer. 15. Check and replace oil with specified type. 16. Have serviced by a Yamaha dealer. 17. Open the air vent screw. 18. Have serviced by a Yamaha dealer. 19. Connect correctly. 20. Inspect spark plug and replace it with recommended type.

Trouble	Possible Cause	Remedy
E. Engine vibrates excessively.	1. Propeller damaged. 2. Propeller shaft damaged. 3. Weeds or other foreign matter tangled on propeller. 4. Motor mounting bolt loose. 5. Clamp screw is loose. 6. Steering pivot loose or damaged.	1. Have propeller repaired or replaced. 2. Have serviced by a Yamaha dealer. 3. Remove and clean propeller. 4. Tighten bolt. 5. Tighten the clamp screw. 6. Tighten or have serviced by a Yamaha dealer.

EMU00416

TEMPORARY ACTION IN EMERGENCY

EMU01492

IMPACT DAMAGE

⚠WARNING

The outboard motor can be seriously damaged by a collision while operating or trailering. Damage could make the outboard motor unsafe to operate.

If the outboard motor hits any object in the water, follow the procedure below.

1) Stop the engine immediately.
2) Inspect the control system and all components for damage. Also, inspect the boat for damage.
3) Whether damage is found or not, return to the nearest harbor slowly and carefully.
4) Have a Yamaha dealer inspect the outboard motor before operating it again.

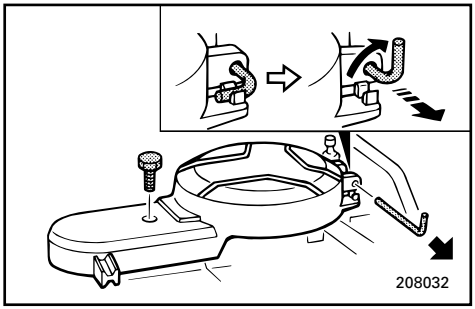
EMU00423

STARTER WILL NOT OPERATE

If the starter mechanism does not operate (engine cannot be cranked with the starter), the engine can be started with an emergency starter rope.

⚠WARNING

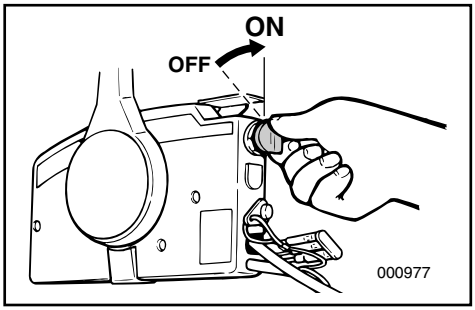
- **Use this procedure only in an emergency and only to return to port for repairs.**
- **When the emergency starter rope is used to start the engine, the start-in-gear protection device does not operate. Make sure the gear shift lever/ remote control lever is in neutral. Otherwise, the boat could unexpectedly start to move, which could result in an accident.**
- **Be sure no one is standing behind you when pulling the starter rope. It could whip behind you and injure someone.**
- **An unguarded rotating flywheel is very dangerous. Keep loose clothing and other objects away when starting the engine. Use the emergency starter rope only as instructed. Do not touch the flywheel or other moving parts when the engine is running. Do not install the starter mechanism or top cowling after the engine is running.**
- **Do not touch the ignition coil, high voltage wire, spark plug cap or other electrical components when starting of operating the motor. You could be shocked.**



EMU01874*

Procedure

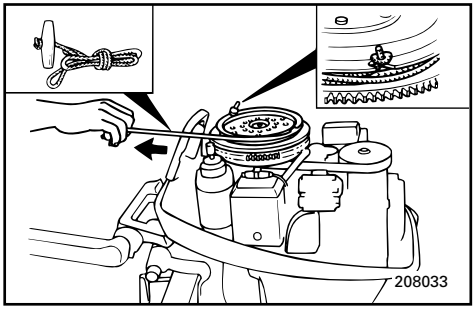
1) To remove the cowling: depress the lock-lever at the rear of the cowling, and lift the cowling up and backward.
2) To remove the flywheel cover: pull out the lock pin, loosen the bolt, and then remove the flywheel cover.
3) Lock the front panel with the lock pin.



4) Prepare the engine for starting. See STARTING ENGINE for procedures. Be sure the engine is in neutral and that the lanyard is attached to the engine stop switch. The main switch must be on if the main switch is equipped on the electric start model.

NOTE:

Refer to “ENGINE FAILS TO OPERATE” for cold engine starting procedures.



5) To start the engine with the emergency starter rope, insert the knotted end of the rope into the notch in the flywheel rotor and wind the rope several turns clockwise. Then give a strong pull straight out to crank the engine. Repeat if necessary.

EMU00434

ENGINE FAILS TO OPERATE

EMU00442

Cold Engine Fails to Start

1) Place the gear shift lever / remote control lever in the neutral position.
2) Open the throttle halfway (on models with neutral throttle-limiter, open throttle as far as it will go).
3) Start the engine.
4) If the engine still will not start, open and close the throttle two or three times to feed additional fuel to the intake manifold by the accelerator pump of the carburetor.
5) Then open the throttle halfway and start the engine.

EMU01511

TREATMENT OF SUBMERGED MOTOR

If the outboard motor is submerged, immediately take it a Yamaha dealer. Otherwise, some corrosion may begin almost immediately.

If you cannot immediately take the outboard motor to a Yamaha dealer, follow the procedure below in order to minimize engine damage.

EMU00448

1) Thoroughly wash away mud, salt, seaweed, etc. with fresh water.
2) Remove the spark plug(s), then face the spark plug holes downward to allow any water, mud or contaminants to drain.
3) Drain the fuel from the carburetor, fuel filter and fuel line. Drain the engine oil completely.
4) Fill the sump with the fresh engine oil as the same quantity as the engine oil capacity.

Engine oil capacity:
Refer to SPECIFICATIONS, Page 4-1.

5) Feed engine fogging oil or engine oil through the carburetor(s) and spark plug hole(s) while cranking the engine with the manual starter or emergency starter rope.
6) Take the outboard motor to a Yamaha dealer as soon as possible.

CAUTION:

Do not attempt to run the motor until it has been completely inspected.

-MEMO-

E

EMU00450

Chapter 6
INDEX

INDEX.....6-1

6

EMU00451

INDEX

A

Adjusting idling speed....4-16
Adjusting trim angle....3-22
Air vent screw....2-2

B

Basic boating rules....1-7
Battery care....4-8
Battery requirement....1-14
Bow down....3-23
Bow up....3-23
Breaking in (running in) engine....3-7

C

Changing engine oil....4-17
Changing gear oil....4-23
Charging battery....3-6
Checking battery....4-27
Checking bolts and nuts....4-29
Checking fuel system....4-14
Checking painted surface of motor....4-30
Checking propeller....4-21
Checking the engine oil level....3-9
Checking timing belt....4-19
Checking top cowling....4—30
Checking wiring and connectors....4-20
Checkpoints after staring engine....3-17
Clamping the outboard motor....3-5
Cleaning and adjusting spark plug....4-12
Cleaning anti-corrosion measure....4-7
Cleaning fuel tank....4-25
Cleaning the fuel filter....4-25
Cleaning the outboard motor....4-30
Coating the boat bottom....4-30
Cold engine fails to start....5-7
Connecting the battery....4-28
Cruising in other conditions....3-28
Cruising in salt water....3-28
Cruising in shallow water....3-26
Cruising in turbid water....3-28

D

Disconnecting the battery....4-29

E

Emission control information....1-2
Engine fails to operate....5-7
Engine oil....1-13
Engine stop button....2-5
Engine stop lanyard switch....2-3, 2-8
Exhaust leakage....4-20

F

Filling fuel....3-10
Flushing cooling system and fogging engine....4-5
Forward....3-18
Fuel hose joint....2-2
Fuel meter....2-2
Fuel tank....2-2, 4-5
Fuel tank cap....2-2
Fueling instructions....1-11

G

Gasohol....1-12
Gasoline....1-12
Gear shift lever....2-3, 2-6
Greasing....4-11

I

Identification numbers record....1-1
Impact damage....5-4
Important labels....4-5
Inspecting and replacing anode(s)....4-26
Inspecting fuel filter....4-15
Installation....3-1

K

Key number....1-1

L

Lubrication....4-7

M

Main components....2-1
Main switch....2-7
Maintenance chart....4-10
Motor exterior....4-30
Mounting height....3-3

Mounting the outboard motor 3-2
N
Neutral interlock trigger 2-7
Neutral throttle lever 2-7
O
Oil pressure indicator.....2-11
Operations of controls and other functions 2-2
Outboard motor serial number.....1-1
P
Periodic maintenance 4-9
Pre-operation checks.....3-8
Propeller checking point 4-21
Propeller selection 1-15
R
Recoil starter handle 2-4
Remote control 2-6
Remote control lever.....2-6
Removing the propeller 4-22
Replacement parts 4-9
Replacing fuse.....4-20
Reverse 3-19
Ring free fuel additive.....3-10
S
Safety information.....1-4
Shallow water lever.....2-11
Shifting.....3-18
Specifications 4-1
Star labels.....1-3
Start-in-gear protection.....1-16
Starter button.....2-4
Starter will not operate 5-5
Starting engine 3-11
Steering friction adjusting screw.....2-9
Steering lock device.....2-10
Stopping engine.....3-20
Storing outboard motor.....4-4
T
Temporary action in emergency 5-4
Throttle control grip.....2-4
Throttle friction adjusting screw 2-9
Throttle friction adjusting screw/knob 2-5
Throttle indicator.....2-5
Tiller handle 2-4
Tilt lock mechanism 2-12
Tilt support lever 2-12
Tilting up/down 3-24
Top cowling lock lever 2-12
Trailering outboard motor.....4-3
Transporting and storing outboard motor 4-3
Treatment of submerged motor 5-8
Trim angle adjusting rod 2-10
Trimming outboard motor.....3-21
Troubleshooting 5-1
W
Warming up engine 3-16
Warranty information .....Next page
Water leakage.....4-20

EMU01599

IMPORTANT WARRANTY INFORMATION FOR U.S.A. AND CANADA

Welcome to the Yamaha Family!

Congratulations on the purchase of your new Yamaha marine power. Yamaha is committed to exceptional customer satisfaction, and we want your ownership experience to be a satisfying one. Please read the following warranty information to help ensure satisfaction with your Yamaha.

Yamaha is ready to stand behind your purchase with strong warranty coverage. To be sure you receive all the benefits of warranty, please take the following steps:

1. Be sure your new Yamaha is registered for warranty. Your boat dealer should do this at the time of sale. Make sure your dealer gives you a copy of the completed Yamaha registration card for your records. If you are unsure whether or not your Yamaha is registered, complete the Warranty Registration card found inside the cover of the Owner's Manual. Mail it to the distributor for the country in which you live (see step 6 for the correct address). If your Yamaha is not properly registered, a warranty repair could be unnecessarily delayed while registration records are checked.

2. Read the Limited Warranty statement which follows these instructions. This warranty applies to Yamaha outboard motors sold in the United States, whether purchased separately or when supplied as original equipment by a boat builder. The terms also apply to original equipment packages sold in Canada, with coverage provided by Yamaha Motor Canada (see ``Warranty Guide" for Canadian models). This warranty explains the conditions of the warranty, including the obligations that your dealer and you as the owner have under the warranty. For example, your Yamaha outboard must receive a proper pre-delivery inspection (PDI) by the selling dealer. Failure to take this important step could jeopardize warranty coverage!

3. If you need warranty repairs, you must take your Yamaha outboard to an authorized Yamaha outboard dealer. Be aware that not all selling boat dealers are authorized Yamaha dealers. Only authorized dealers have the factory training, special tools, and Yamaha support needed to perform warranty repairs.

4. If you are away from home, or your selling dealer is not an authorized Yamaha dealer, use the following toll-free numbers to find the nearest Yamaha dealer.

   United States Dealer Locations: 1-800-692-6242
   Canada Dealer Locations: 1-800-267-8577

5. Your warranty applies specifically to repairs made in the country of purchase. If your U.S.-purchased Yamaha needs warranty service while in Canada, or your Canadian purchased Yamaha needs service while in the United States, Yamaha will assist the local dealer whenever possible. However, some products available in one country may not be sold or serviced in the other.

6. If you need any additional information about your Yamaha or warranty coverage which your dealer cannot provide, please contact us directly.

Yamaha Motor Corporation, U.S.A.
P.O. Box 6555
Cypress, CA 90630
Attention: Customer Relations Department

Telephone No. (714) 761-7439
Fax No. (714) 761-7559

Yamaha Motor Canada Ltd.
480 Gordon Baker Road
Toronto, Ontario
M2H 3B4
Attention: Customer Relations Department

Telephone No. (416) 498-1911
Fax No. (416) 491-3122

EMU01404

YAMAHA MOTOR CORPORATION, U.S.A.
FOUR-STROKE OUTBOARD MOTOR
THREE-YEAR LIMITED WARRANTY

Yamaha Motor Corporation, U.S.A. hereby warrants that new Yamaha 1999-or-later model four-stroke outboard motors originally distributed by Yamaha Motor Corporation, U.S.A. will be free from defects in material and workmanship for the period of time stated herein, subject to certain stated limitations. Warranty coverage for outboards distributed by non-US Yamaha affiliated companies may be different.

PERIOD OF WARRANTY. Any new Yamaha 1999-or-later model four-stroke outboard motor purchased and registered with Yamaha Motor Corporation, U.S.A. for pleasure use in the United States, will be warranted against defects in material or workmanship for a period of three (3) years from the date of purchase, subject to exclusions noted herein. Any Yamaha outboard motor purchased and utilized for commercial applications will be warranted for a period of one (1) year from the date of purchase, subject to exclusions noted herein. Yamaha peripheral equipment included with the motor, such as gauges, fuel tanks, and hoses, remote control boxes, and wiring external from the motor unit, will be warranted for one (1) year from the date of purchase of either pleasure or commercial use. Replacement parts used in warranty repairs will be warranted for the balance of the applicable warranty period.

The second and third year of warranty (if applicable) shall be limited to covering the cost of parts and labor for major components only. The major components covered are:

Power Unit Section
- Power Head
- Intake Manifold
- Carburetor Assembly and its Related Components
- Fuel Injection System and its Related Components
- Fuel and Oil Pump Assemblies
- Ignition System (Standard and Microcomputer)

Lower Unit Section
- Exhaust System
- Upper Casing
- Lower Unit Assembly

Bracket Section
- Bracket System
- Power Trim and Tilt Assembly

WARRANTY REGISTRATION. To be eligible for warranty coverage, the outboard motor must be registered with Yamaha Motor Corporation, U.S.A. Warranty registration can be accomplished by any authorized Yamaha Outboard Motor Dealer. Upon receipt of the registration, an Owner's Warranty Card will be sent by Yamaha to the registered purchaser.

OBTAINING REPAIRS UNDER WARRANTY. To receive repairs under this warranty, a valid Owner's Warranty Card must be presented to an authorized Yamaha Outboard Motor Dealer.

During the period of warranty, any authorized Yamaha outboard dealer will, free of charge, repair or replace, at Yamaha's option, any parts adjudged defective by Yamaha due to faulty workmanship or material from the factory. All replaced parts will become the property of Yamaha Motor Corporation, U.S.A.

CUSTOMER'S RESPONSIBILITY. Under the terms of this warranty, the customer will be responsible for ensuring that the outboard motor is properly operated, maintained, and stored as specified in the applicable Owner's Manual.

The owner of the outboard motor shall give notice to an authorized Yamaha Outboard Motor Dealer of any and all apparent defects within ten (10) days of discovery and make the motor available at that time for inspection and repairs at the dealer's place of business.

GENERAL EXCLUSIONS FROM WARRANTY. This warranty will not cover the repair of damage if the damage is a result of abuse or neglect of the product. Examples of abuse and neglect include, but are not limited to:

1. Racing or competition use, modification of original parts, abnormal strain.
2. Lack of proper maintenance and off season storage as described in the Owner's Manual, installation of parts or accessories that are not equivalent in design and quality genuine Yamaha parts.
3. Operation of the motor at an rpm other than specified, use of lubricants or oils that are not suitable for outboard motor use.
4. Damage as a result of accidents, collisions, contact with foreign materials, or submersion.
5. Growth of marine organism on motor surfaces.
6. Normal deterioration.

SPECIFIC PARTS EXCLUDED FROM WARRANTY. Parts replaced due to normal wear or routine maintenance such as oil, spark plugs, shear pins, propellers, hubs, fuel and oil filters, brushes for the starter motor and power tilt motor, water pump impellers, and anodes, are not covered by warranty.

Charges for removal of the motor from a boat and transporting the motor to and from an authorized Yamaha Outboard Motor Dealer are excluded from warranty coverage.
Specific parts excluded from the second and third year of warranty (if applicable) are:

- Top and Bottom Cowling
- Electric Components (other than ignition system)
- Rubber Components (such as hoses, tubes, rubber seals, fittings, and clamps)

TRANSFER OF WARRANTY. Transfer of the warranty from the original purchaser to any subsequent purchaser is possible by having the motor inspected by an authorized Yamaha Outboard Motor Dealer and requesting the dealer to submit a change of registration to Yamaha Motor Corporation, U.S.A. within ten (10) days of the transfer.

YAMAHA MOTOR CORPORATION, U.S.A. MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE OBLIGATIONS AND TIME LIMITS STATED IN THIS WARRANTY ARE HEREBY DISCLAIMED BY YAMAHA MOTOR CORPORATION, U.S.A. AND EXCLUDED FROM THIS WARRANTY.

SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU. ALSO EXCLUDED FROM THIS WARRANTY ARE ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING LOSS OF USE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

YAMAHA MOTOR CORPORATION, U.S.A.
Post Office Box 6555
Cypress, California 90630

WARRANTY QUESTIONS AND ANSWERS

Q. What costs are my responsibility during the warranty period?
A. The customer`s responsibility includes all costs of normal maintenance services, non-warranty repairs, accident and collision damages.

Q. What are some examples of ``abnormal" strain, neglect, or abuse?
A. These terms are general and overlap each other in areas. Specific examples include:
Running the machine out of oil, operating the machine with a broken or damaged part which causes another part to fail, damage or failure due to improper or careless transportation, and/or tie down. If you have any specific questions on operation or maintenance, please contact your Yamaha outboard dealer for advice.

Q. Does the warranty cover incidental costs such as towing or transportation due to a failure?
A. No. The warranty is limited to repair of the machine itself.

Q. May I perform any or all of the recommended maintenance shown in the Owner's Manual instead of having the dealer do them?
A. Yes, if you are a qualified mechanic and follow the procedures specified in the Owner's and Service Manuals. We do recommend, however, that items requiring special tools or equipment be done by a Yamaha outboard dealer.

Q. Will the warranty be void or canceled if I do not operate or maintain my new outboard exactly as specified in the Owner's Manual?
A. No. The warranty on a new outboard cannot be "voided`` or "canceled``. However, if a particular failure is caused by operation or maintenance other than as shown in the Owner's Manual, that failure may not be covered under warranty.

Q. What responsibility does a Yamaha outboard dealer have under this warranty?
A. Each Yamaha outboard dealer is expected to:
1. Completely set up each outboard he sells prior to delivery.
2. Explain the operation, maintenance, and warranty requirements to your satisfaction at the time of sale, and upon your request at any later date.

In addition, each Yamaha outboard dealer is held responsible for his setup, service and warranty repair work.

Q. Is the warranty transferable to second owners?
A. Yes. The remainder of any existing warranty can be transferred upon request. The unit has to be inspected and re-registered by an authorized Yamaha outboard dealer for the policy to remain effective.

CUSTOMER SERVICE

If your machine requires warranty service, you must take it to any authorized Yamaha outboard dealer within the continental United States. Be sure to bring your warranty registration identification or other valid proof of the original date of purchase. If a question or problem arises regarding warranty, first contact the owner of the dealership. Since all warranty matters are handled at the dealer level, this person is in the best position to help you. If you are still not satisfied and require additional assistance, please write:

YAMAHA MOTOR CORPORATION U.S.A.
CUSTOMER RELATIONS DEPARTMENT
P.O.Box 6555
Cypress, California 90630

When contacting Yamaha Motor Corporation, U.S.A. don't forget to include any important information such as names, addresses, model, engine serial number, dates, and receipts.

CHANGE OF ADDRESS

The federal government requires each manufacturer of a motor vehicle to maintain a complete, up-to-date list of all first purchasers against the possibility of a safety-related defect and recall. This list is complied from the purchase registrations sent to Yamaha Motor Corporation, U.S.A. by the selling dealer at the time of your purchase.

If you should move after you have purchased your new outboard, please advise us of your new address by sending a postcard listing your outboard model name, engine serial number, dealer number (or dealer's name) as it is shown on your warranty identification, your name and new mailing address. Mail to:

YAMAHA MOTOR CORPORATION, U.S.A.
WARRANTY DEPARTMENT
P.O.Box 6555
Cypress, California 90630

This will ensure that Yamaha Motor Corporation, U.S.A. has an up-to-date registration record in accordance with federal law.

EMU01178

IMPORTANT WARRANTY INFORMATION
IF YOU USE YOUR YAMAHA OUTSIDE U.S.A. OR CANADA

Welcome to the Yamaha Family!

Congratulations on the purchase of your new Yamaha marine power. Yamaha is committed to exceptional customer satisfaction, and we want your ownership experience to be a satisfying one. Please read the following warranty information to help ensure satisfaction with your Yamaha.

This model was manufactured as a U.S.A. specification model, and the warranty statement shown in this manual is for market. To receive the benefits of the warranty that applies to the country in which you use your Yamaha, please note the following information.

1. The warranty on this model is the same as equivalent models sold in the country where you will receive service. If you need more information about your warranty coverage or your Yamaha outside the U.S.A. or Canada, please contact an authorized Yamaha dealer in your country.

2. Keep a copy of your sales contract or invoice for the purchase of your Yamaha and present it if you need warranty repairs. This document should show the date of purchase, which is important evidence the repairing dealer will need to be sure your Yamaha is covered by warranty.

3. If your Yamaha needs warranty repairs, contact an authorized Yamaha dealer in the country where you are. He will explain how to get warranty service in that country.

4. This Yamaha model may not be sold in some countries. Therefore, in some cases your local dealer may not have all the parts or service information he may need, which may unavoidably delay repairs. If this happens, we thank you for your understanding and assure you we will attempt to resolve the situation as quickly as possible.

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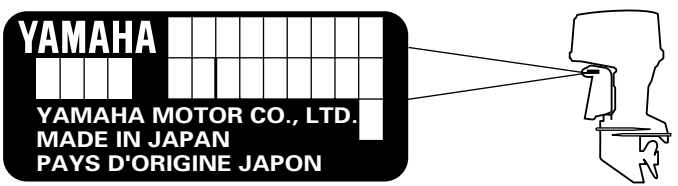
YAMAHA

OUTBOARD MOTOR WARRANTY REGISTRATION
ENREGISTREMENT DE LA GARANTIE DU MOTEUR HORS-BORD

Please complete and mail this card. This information is necessary to accurately register your unit for warranty.
Veuillez signer ci-dessous pour attester que le montage et l'inspection ont été faits dans le respect des directives d'inspection et que la marche à suivre pour la garantie et l'entretien a été expliquée à l'acheteur au détail.

OUTBOARD MOTOR MODEL AND SERIAL NUMBER (From I.D. label on clamp bracket)
MODÉLE ET NO. DE SÉRIE DU MOTEUR HORS-BORD (sur l'étiquette d'identification de la presse de fixation)



(For Dealer Use Only)
(A l'usage du concessionnaire)
YAMAHA DEALER NUMBER
NO. DU CONCESSIONNAIRE YAMAHA

DEALER NAME
NOM DU CONCESSIONNAIRE

DATE SOLD
DATE DE LIVRAISON
MONTH / MOIS — DAY / JOUR — YEAR / ANNÉE

USAGE (Check One) / UTILISATION (En cocher un.)
☐ PLEASURE / LOISIR
☐ COMMERCIAL / COMMERCIAL

OWNER'S NAME
NOM DU PROPRIÉTAIRE
FIRST / PRÉNOM — LAST / NOM DE FAMILLE

ADDRESS
ADRESSE
STREET / RUE

CITY / VILLE — STATE/PROVINCE / PROVINCE — ZIP / CODE POSTAL

PHONE NUMBER ( )
NUMÉRO DE TÉLÉPHONE

PLACE
POSTAGE
HERE

ATTN: WARRANTY DEPARTMENT